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ANNUAL ACTIVITY REPORT



**Fondation Jeunes
Scientifiques
Luxembourg**

Under the high patronage of
His Royal Highness the Grand Duke

Fondation Jeunes Scientifiques Luxembourg

2019



IMPRINT

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WORD OF WELCOME

BY THE CHAIRMAN



CARLO HANSEN CHAIRMAN

Dear readers,
Ladies and Gentlemen,

It takes a lot of motivation and courage to meet the great challenges of our time. Even if we cannot find a solution to all problems, we should at least try – ideally by working together across borders, cultures, and scientific fields – especially in a way that respects both human beings and the environment.

For my part, I remain convinced that science makes the difference. As in Peter Pan's story, I believe in "fairies" that are the benefits of science and scientific progress – and that's why I decided to roll up my sleeves and lend a hand. We cannot deny that we earthlings are mere tiny organisms in this universe, living on a small blue planet in the order of magnitude of a medium-sized star, in a galaxy composed of hundreds of billions of

other stars, a galaxy that – to top it all off – is only one of many billions of other galaxies. And yet, each of us is unique and special.

It is finally up to us to decide: we go through this world only once – until proven differently – and we are left with the choice to either do nothing, while waiting for the world to end, or to have fun trying to find solutions to some of our difficulties.

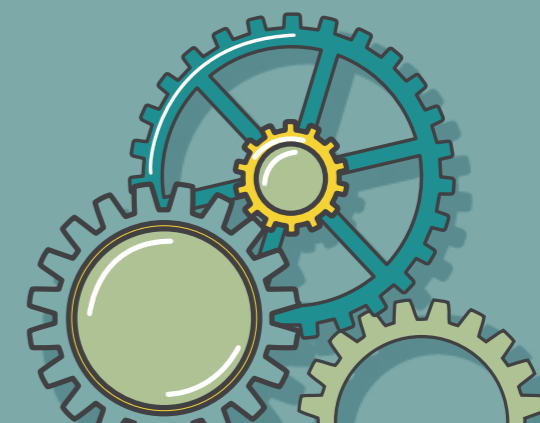
As Marie Curie said: "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less."

So, why not be a scientist? Scientists are a fascinating breed: they are creative, adventurous, but also pragmatic and critical people. In my humble opinion, being interested in science and practicing it is a good way of spending your time on Earth. Therefore, dear young scientists, continue your projects, realize your ideas and dreams, explore, play, experiment. Believe in who you are and what you can do. You can make a difference. Have courage and say "no" to those who try to stop you and keep shining like a strange diamond. Before you lies an ocean of things yet to be discovered. To quote Edwin Powell Hubble: "Equipped with his five senses, man explores the universe around him and calls the adventure Science." Now it is your turn to go ahead and discover the world.

The purpose of the Fondation Jeunes Scientifiques' efforts is to give the participants perspectives, hope, and enough courage and confidence to continue and fight for a better future in a world that can be very intimidating and threatening as we all know, but also exciting and inspiring each of us to explore and discover it.

I would like to thank and express my gratitude to our sponsors who are making a significant contribution to helping our young people discover their talents. Without your help, financial or otherwise, we could not offer our winners the opportunity to present their project at competitions, exhibitions and workshops abroad, or to discover the many paths leading to science.

Last but not least, thank you, parents, teachers, followers and friends of the Jonk Fuerscher for your support.





THE 2019 NATIONAL JONK FUERSCHER CONTEST

ORGANISATION OF THE 48TH EDITION OF THE NATIONAL JONK FUERSCHER CONTEST

The 48th edition of the national Jonk Fuerscher contest took place on **23rd and 24th March 2019** at the Forum Campus Geesseknäppchen in Luxembourg City.

The awards ceremony took place on 24th March, in the presence of Prime Minister Xavier Bettel, Dr. Marc Schiltz, the Secretary General of the Luxembourg National Research Fund (FNR), and Jean-Paul Bertemes, the Head of Activity at the FNR.

This year, the Fondation Jeunes Scientifiques saw another slight increase in the number of participants compared to the previous edition. For this event a total of 61 Jonk Fuerscher spread out over 32 teams had committed themselves to implement innovative projects in diversified scientific fields such as biology, social sciences, and engineering.

Taking into consideration their age and the quality of their work, all the participating Jonk Fuerscher between 11 and 21 years old were awarded exclusive and prestigious prizes. The most advanced projects were given the opportunity to represent Luxembourg at international competitions in China, the United States, Taiwan, France, and at EUCYS, a contest organised by the European Commission.

The younger scientists were invited to attend internships, exhibitions, and participate in other scientific activities throughout Europe.

The 2019 edition also saw the initiation of a new prize: the "Gernsback" prize, generously sponsored by Ralph Letsch, enabled three young students to participate in the International Science Fair (ISF) in Abu Dhabi, organised by MILSET.

Alongside the national Jonk Fuerscher competition, the Expo-Sciences hosted delegations from all over the world – South Africa, Spain, Slovenia, and Kirgizstan to name a few – who presented their scientific projects in non-competitive conditions. Overall, the weekend allowed both participants and invitees from different nationalities and cultures to share and exchange precious experiences, with the objective of creating an intercultural and inclusive dialogue.

LIST OF PROJECTS AND TEAMS

PROJECT TITLE	PROJECT INITIATORS	SCHOOLS
8-bit CPU Visualizer	Henri Ahola	European School I
Zhentrifuge	Alexandre Baptista, Felix De Vleeschauwer, Zheng Zhu	Lycée Michel Lucius
Does a creek have the same biological function as an aquarium?	Myriam Bartolé	École Privée Notre-Dame Sainte-Sophie
Mycelium for future	Alex Cowan, Eunju Moon, Seongmin Park	International School of Luxembourg
Germination of different seeds	Carl Dackner, Ari Zi Lun Tham, Jaron Shepro	International School of Luxembourg
The Multigenerator	Marcus Dackner, Samuel Weisz	International School of Luxembourg
Immunogenic nucleic polypeptide complex for influenza virus neutralisation	Emily Cordier, Jean-Marc Furlano, Sylvie-Anne Soares Pereira	Atert-Lycée Redange
Herstellung von Sonnencreme und Bestimmung des Lichtschutzfaktors	Nadine Haas, Mariana Almeida Rodrigues	Lycée Hubert Clément Esch/Alzette

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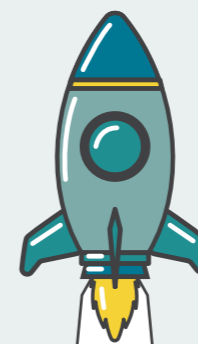


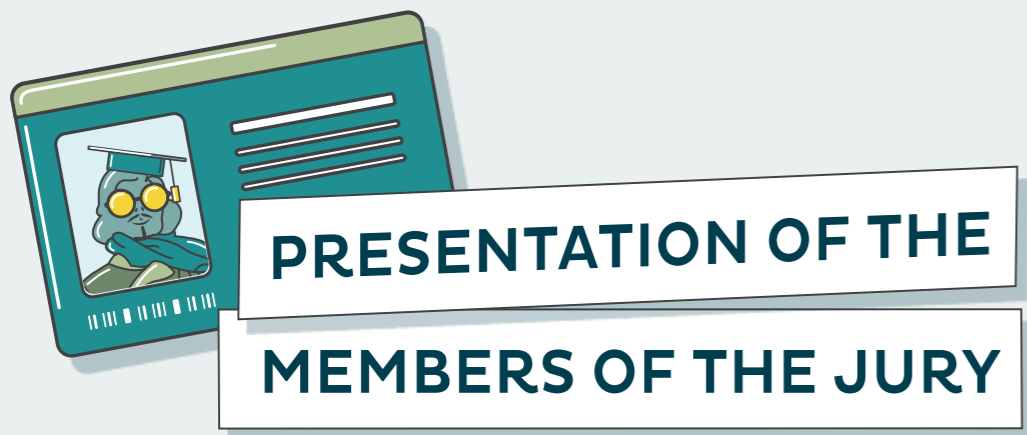


LIST OF PROJECTS AND TEAMS (next)

PROJECT TITLE	PROJECT INITIATORS	SCHOOLS
"Capscrew" A bottle opener for people with reduced wrist dexterity	Niccolo Hurst	Imperial College London
The Wheelchair Accessibility Belt	Camilla Hurst	University of Oxford
H2O - Lebensgrundlage des menschlichen Körpers	Ashiqul Islam	Lycée des Arts et Métiers
Robots: Small ways they can effectively impact the world	Alina Jade Liedtke, Ishaana Mushunuri Rao	International School of Luxembourg
Fruit and Vegetable batteries	Jordan Van Zandt, Erik Nackberg	International School of Luxembourg
Social Media and our perception of Beauty	Daria Nikolova, Eleonora Mannino	European School I
Les enjeux de la qualité de l'eau	Mariana Nunes Dias	Lycée Michel Lucius
Avocados in different solutions	Tobias Obel, Joseph Yi Xian Tham	International School of Luxembourg
The ever rolling ball, a model of perpetual motion	Gaspar Arvai, Maximilian de Pauw Gerlings	Lycée Michel Lucius
The fractal structure of the bronchial tree	Marie Barberon	International School of Luxembourg
Analysis of the Blakett effect based on the detected cosmic muon flux with the AMD5 detector	Yannis Demoutiez, Noah Stevens, Christophe Luis	Lycée Ermesinde
Game theory in practice	Lukas Kooy, Oscar van Bommel	Lycée Michel Lucius
Let there be(e) Glyphosate	Dylan Ramsurrun, Anaïs Croquet, Marie Croquet	Lycée Michel Lucius
Does the flawless diet exist?	Melina Argyrou, Valeria Masheva	European School I

PROJECT TITLE	PROJECT INITIATORS	SCHOOLS
Investigating the antibacterial properties of honey	Nor Sefex Afenday, Nhu Khanh Lê, Nityapriya Hari Krishnan	Lycée Michel Lucius
Doors of the future	Zofia Machula, Amelia Lech, Łukasz Zajac	European School I
Safe trip home from school	Krzyszimir Hyżyk	European School I
LuFtiG	Giustina von Kameke	European School I
Smart Cap	Avanti Sharma, Ieva Stalaukaite, Madara Thein	European School I
Medical uses of Polyporus versicolor and practical application in humanitarian problem areas	Jim Welter, Noah Edert	Atert-Lycée Redange
Putin's Russia and how do young people react to it	Marina Yakubova	Lycée Aline Mayrisch
Antigen-Antibody binding	Anna Batmanova, Jennifer Michael	Lycée Michel Lucius
Complete meal, nutrients and caloric value	Augustin Rendu	Lycée Michel Lucius
Factors that affect the digestion of proteins in gastric acid	Naz Toygar	International School of Luxembourg





PRESENTATION OF THE MEMBERS OF THE JURY

SERGE QUAZZOTTI President of the jury	Director of IPIL (Institut de la Propriété Intellectuelle Luxembourg) and PhD in Chemistry
YANNICK GAASCH	Philosophy Student
CHRISTELLE BAHLOWANE	Project Manager at Biobanking; Specialised in Molecular Biology and Microbiology
PHILIPPE SERVAIS	PhD in Pharmacy; Pharmacist
FELIX NOTHAR	Project and Process Engineer
JEAN-FRANÇOIS HAUSMAN	Biologist at the LIST (Luxembourg Institute of Science and Technology)
VALÉRIE MAQUIL	PhD in Computer Science, Researcher at "IT for Innovative Services" at LIST
JANUSZ BODEK	Historian
SÉBASTIEN WIERTZ	General Manager of InCub at Paul Wurth; Engineer

SERGE QUAZZOTTI

President of the jury



"I love the positive vibes and the refreshing enthusiasm of the young scientists. There is a necessity to encourage and support them, to give them the opportunity to confront their projects and ideas with realities of the field, which they are not used to encounter at their schools. This is an important role for all the scientists, entrepreneurs and experts who are part of this jury." - Serge Quazzotti

PHILIPPE SERVAIS

PhD in Pharmacy; Pharmacist



"I am honoured to serve an initiative that brings future generations of researchers closer to science and critical thinking. My pharmaceutical studies have allowed me to become familiar with subjects such as chemistry, mycology, botany, genetic engineering, pharmacology and many others. In a world that is becoming increasingly competitive, demanding and specific, I find it essential to awaken the scientific spirit of every young person, in order to better confront important issues such as global warming, famine, overpopulation and multi-resistance." - Philippe Servais

JEAN-FRANÇOIS HAUSMAN

Biologist at the LIST (Luxembourg Institute of Science and Technology)



"Because research and innovation need new actors who will bring fresh ideas, new perspectives, different approaches to meet the immense societal challenges before us." - Jean-François Hausman

VALÉRIE MAQUIL

PhD in Computer Science, Researcher at "IT for Innovative Services" at LIST



"There are so many creative, inspiring and highly competent young minds outside. I think it is important to support them in developing their talents - they are the best candidates to shape our future world!" - Valérie Maquil



THE RESULTS OF THE CONTEST

LIST OF PROJECTS AS WELL AS THEIR ATTRIBUTED AWARDS

Intel ISEF

International Science and Engineering Fair US (Phoenix, AZ), sponsored by Capitalatwork



"8-bit CPU Visualizer"
by Henri Ahola (15 years old)

With his tool visualizing the functioning of a computer processor, Henri Ahola from the European School was awarded the participation in the Intel ISEF by Capitalatwork. His "8-bit CPU Visualizer" simulates how data moves inside a computer while it operates.

INTERNATIONAL SCIENCE SUMMER INSTITUTE - WEIZMANN INSTITUTE

(Rehovot, Israel), sponsored by the Matanel Foundation

"The Wheelchair Accessibility Belt"
by Camilla Hurst (18 years old)

With the Wheelchair Accessibility Belt (WAB) Camilla Hurst found a way to innovate the standard wheelchair and make it fit for the outdoors, regardless of the weather conditions.



CASTIC

China Adolescents' Science and Technology Innovation Contest (Macau), sponsored by the Foundation Nicolas and Jean-Paul Lanners



"Safe trip home from school"
by Krzesimir Hyżyk (13 years old)

Through his coding skills, Krzesimir Hyżyk developed a computer model, simulating the movement of cars on a busy road, to determine what effect the installation of lights would have on traffic.

EUCYS

European Union Contest for Young Scientists (Sofia, Bulgaria), sponsored by the European Commission



BIOLOGY DEPARTMENT:

"Let there be(e) Glyphosate"
by Dylan Ramsurrun (16 years old), Anaïs Croquet (17 years old), and Marie Croquet (15 years old)

"Let there be(e) Glyphosate" is a project of Dylan Ramsurrun, Anaïs Croquet and Marie Croquet, students of the Lycée Michel Lucius. Their study focuses on glyphosate residues in different types of honey.



SOCIAL SCIENCES DEPARTMENT:

"Putin's Russia and how do young people react to it"
by Marina Yakubova (15 years old)

Marina Yakubova conducted a survey among young Russians to see how they interact with Putin's politics.



LIST OF PROJECTS AS WELL AS THEIR ATTRIBUTED AWARDS (next)

LIYSF

London International Young Science Forum, sponsored by the Foundation Alphonse Weicker

“Immunogenic nucleic polypeptide complex for influenza virus neutralisation”

by Jean-Marc Furlano (17 years old), Emily Cordier (17 years old), and Sylvie-Anne Soares Pereira (17 years old)

The project of Jean-Marc, Emily and Sylvie – students of the Atert-Lycée Redange – involves research to neutralize the influenza virus by modifying certain DNA and RNA sequences to prevent the spread of a potential infection.



TISF

Taiwan International Science Fair, sponsored by Paul Wurth S.A



“Medical uses of Polyporus versicolor and practical application in humanitarian problem areas”

by Jim Welter (15 years old), and Noah Edert (16 years old)

The prize, sponsored by Paul Wurth S.A., was awarded to the project of Jim Welter and Noah Edert. They analysed whether the polypore versicolor (fungus) could have probiotic properties.

ISTF – INTERNATIONAL SWISS TALENT FORUM

“The fractal structure of the bronchial tree”

by Marie Barberon (18 years old)

Marie presented her project in biology and mathematics, which explores the structure of the lungs through a mathematical perspective, and was given the opportunity to participate in the 9th edition of the ISTF in Nottwil, Switzerland, upon the generous invitation of the Swiss Youth in Science.



MILSET AWARD – EXPO-SCIENCES INTERNATIONAL

(Abu Dhabi), sponsored by the Prix Hugo Gernsback (Ralph Letsch)



“Capscrew – A bottle opener for people with reduced wrist dexterity”

by Niccolo Hurst (20 years old)

“Game theory in practice”
by Lukas Kooy (18 years old) and Oscar van Bommel (16 years old)

MOBSCIENCES 2019 AWARDS

sponsored by Anefore, a European Commission agency

ERASMUS FRANCE

(Expo-Sciences Cirasti Toulouse)

“Robots: Small ways they can effectively impact the world”

by Alina Jade Liedtke (14 years old) and Ishaana Mushunuri Rao (14 years old)

The project of these two students from the International School Luxembourg focused on the usefulness of robots in everyday life to facilitate specific tasks for people with reduced mobility.

“Social Media and our perception of Beauty”

by Daria Nikolova (16 years old) and Eleonora Mannino (15 years old)

Daria and Eleonora conducted a survey on the effects of social media on self-awareness and self-esteem, social behaviour and mental health.

ERASMUS BELGIUM

(Expo-Sciences Brussels)

“The Multigenerator”

by Marcus Bjorn Dackner (14 years old) and Samuel Weisz (13 years old)

Marcus and Samuel have planned the construction of a multifunctional generator, which can operate when there is no more electricity available.

“Complete meal, nutrients and caloric value”

by Augustin Rendu (17 years old)

Project on the realization of a meal specifically adapted to a person's individual nutritional needs, and on the reduction of production costs.

“Does a creek have the same biological function as an aquarium?”

by Myriam Bartolé (15 years old)

Myriam's project is an analysis of the comparison between the biological properties of a creek against those of an aquarium, as well as the consequences due to artificiality.





LIST OF PROJECTS AS WELL AS THEIR ATTRIBUTED AWARDS (next)

ERASMUS SPAIN

(International Congress, Zaragoza)

“Investigating the antibacterial properties of honey”

by Nor Aimi Sefex Afenday (16 years old), Nhu Khanh Lê (15 years old), and Nityapriya Hari Krishnan (15 years old)



“Les enjeux de la qualité de l'eau”

by Mariana Nunes Dias (16 years old)

ERASMUS MOROCCO

(“Le printemps des Sciences” in Fez and Meknes)

“H2O – Lebensgrundlage des menschlichen Körpers”

by Ashiqul Islam (17 years old)



“Zhentrifuge”

by Alexandre Baptista (18 years old), Felix de Vleeschauwer (17 years old), and Zheng Zhu (19 years old)



C GENIAL

(Paris, France), sponsored by FJSL

“LuFtiG”

by Giustina Von Kameke (11 years old)



DLR

Deutsches Zentrum für Luft- und Raumfahrt (Cologne, Germany), sponsored by Sogeprom

“Analysis of the Blackett effect based on the detected cosmic muon flux with the AMD5 detector”

by Christophe Luis (16 years old)

YOUTH SCIENCE MEETING

(Coimbra, Portugal), sponsored by Mady Delvaux

“Mycelium for future”

by Seongmin Park (16 years old)



AMUSCIENCES

(Virton, Belgium), sponsored by FJSL

“Smart Cap”

by Avanti Sharma (13 years old), Ieva Stalaukaite (11 years old), and Madara Thein (12 years old)



PARIS SCIENCE TRIP

sponsored by Electro-Bobinage Paul Zwick

“Herstellung von Sonnencreme und Bestimmung des Lichtschutzfaktors”

by Nadine Haas (16 years old) and Mariana Almeida Rodrigues (16 years old)

“Factors that affect the digestion of proteins in gastric acid”

by Naz Toygar (13 years old)

“The ever rolling ball, a model of perpetual motion”

by Gaspar Arvai (12 years old) and Maximilian de Pauw Gerlings (11 years old)

“Analysis of the Blackett effect based on the detected cosmic muon flux with the AMD5 detector”

by Yannis Demoutiez (17 years old) and Noah Stevens (15 years old)

“Does the flawless diet exist?”

by Melina Argyrou (15 years old), Valeria Masheva (15 years old)

“Doors of the future”

by Zofia Machula (11 years old), Amélia Maria Lech (12 years old), Łukasz Piotr Zajac (11 years old)

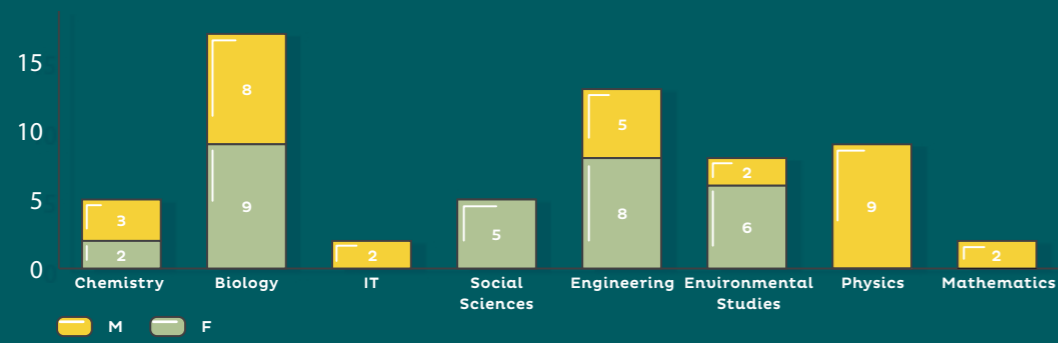


THE CONTEST: SURVEYED AND QUANTIFIED

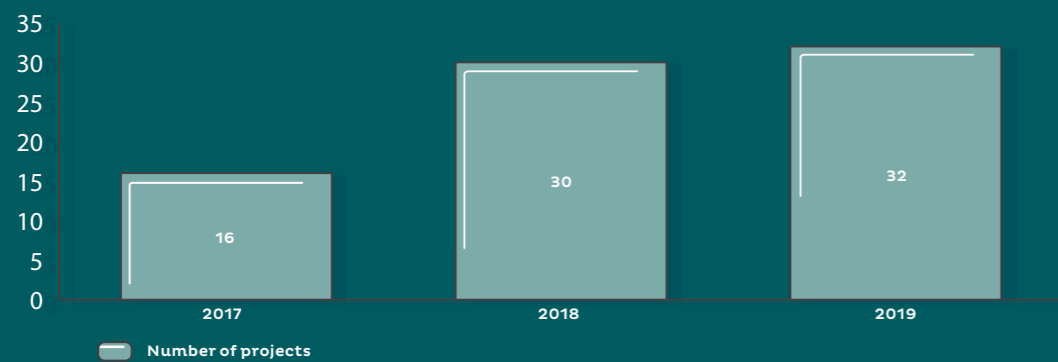
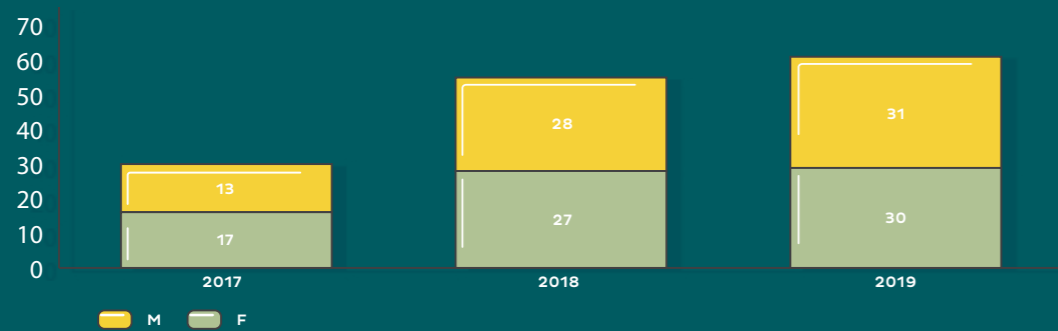
The last two years' numbers show a clear increase in overall participation in the national Jonk Fuerscher contest. From 2017 to 2019, the number of projects doubled, noting that female participation is almost equal to male participation.

This latest edition of the national Jonk Fuerscher contest welcomed 61 participants in 32 teams and presented projects in the hard and social sciences, more specifically within the fields of chemistry, biology, computer science, social sciences, engineering, mathematics, environmental sciences and physics.

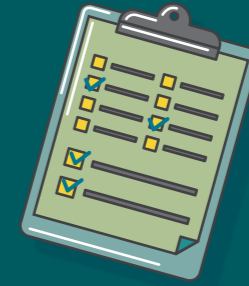
SUMMARY OF PARTICIPANTS AND PROJECTS 2019



SUMMARY OF PARTICIPANTS AND PROJECTS 2017 - 2019

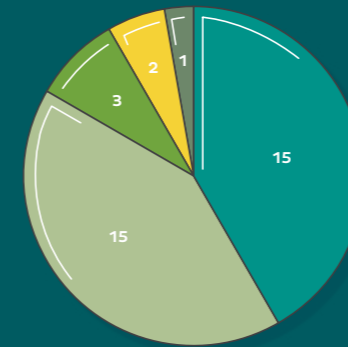


SATISFACTION SURVEY



HOW DID YOU FIND OUT ABOUT THE NATIONAL CONTEST?

36 respondents

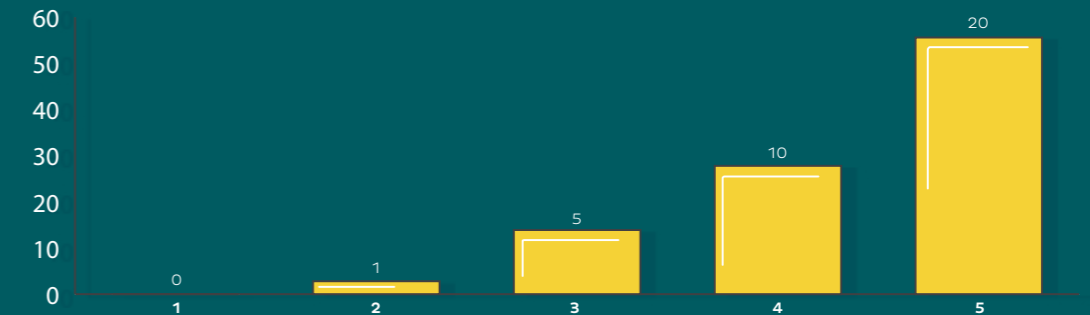


The survey clearly shows that communication via online networks has not had an impact on young people. Thus, the foundation's objective is to significantly extend its visibility on the various online channels in the coming year and to adapt its communication strategy accordingly.

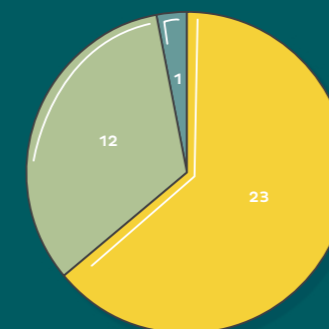
- Presentation in school
- Teachers / School Staff
- Friends
- Other Young Scientists
- Internet (Social media, Homepage)
- Other

HOW SATISFIED WERE YOU WITH THE EVENT?

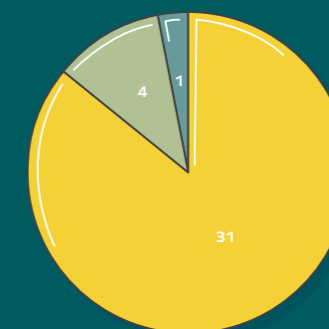
36 respondents



Will you submit a project next year?



Will you recommend the event to your friends?



- Yes
- Maybe
- No



SPONSORS, PARTNERS AND AWARDS

It is important to highlight that the success of the national Jonk Fuerscher contest is largely determined by the generous support of our valued sponsors and partners.

In 2019, the Foundation was able to retain its sponsors and acquire new ones.

Thanks to the loyalty of our sponsors and partners, young scientists from Luxembourg have been given the opportunity to benefit from more prestigious prizes, which have enabled them to exchange ideas and present themselves and their projects at an international level.

AWARD	SPONSOR	NUMBER OF PRIZES	PRIZE ATTRIBUTED TO
CASTIC (MACAO - CHINA)	FONDATION LANNERS	1	Krzesimir HYŻYK
Intel ISEF (PHOENIX - USA)	capital at work	1	Henri AHOLA
EUCYS (SOFIA - BULGARIA)	Commission européenne	2	Dylan RAMSURREUN, Anaïs Marjorie CROQUET, Marie Morgane CROQUET, Marina YAKUBOVA
London International Youth Science Forum (LONDON - UK)	Fondation Alphonse Weicker	1	Jean-Marc FURLANO, Emily CORDIER, Sylvie-Anne SOARES PEREIRA
Youth Science Meeting (COIMBRA - PORTUGAL)	MADY DELVAUX	1	Alex COWAN, Eunju MOON, Seongmin PARK
Taiwan Science Fair (TAIPEI - TAIWAN)	PAUL WURTH	1	Jim WELTER, Noah EDERT
ISTF (NOTTWIL - SWITZERLAND)	SCHWEIZER JUGEND FORSCHT LA SCIENCE APPELLE LES JEUNES SCIENZA E GIOVENTU'NA	1	Marie BARBERON

ISSI - Weizmann Institute (JERUSALEM - ISRAEL)	MATANEL	1	Camilla HURST
Expo-Sciences MILSET (ABU DHABI - UAE)	GIBNSBAK MILSET	2	Niccolo HURST, Lucas KOOY, Oscar VAN BOMMEL
DLR (COLOGNE - GERMANY)	SOGE PROM	1	Yannis DEMOUTIEZ, Noah STEVENS, Christophe LUIS
Le printemps de Sciences - Fes and Meknes (MOROCCO)		2	Ashiqul ISLAM, Alexandre BAPTISTA, Felix DE VLEESCHAUER, Zheng ZHU
I love Sciences - Brussels (BELGIUM)	Commission européenne	3	Marcus Bjorn DACKNER, Samuel WEISZ, Myriam Alexandra BARTOLÉ, Augustin RENDU
Expo régionale Cirasti - Toulouse (FRANCE)	anefore	2	Daria NIKOLOVA, Eleonora MANNINO, Anna BATMANOVA, Jennifer MICHAEL
International Youth Congress - Zaragossa (SPAIN)		1	Nor Aimi Sefex AFENDAY, Nhu Khanh LÊ, Nityapriya HARI KRISHNAN
Expo CGénial (PARIS - FRANCE)	Fondation Jeunes Scientifiques Luxembourg	2	Zofia MACHULA, Amélia Maria LECH, Łukasz PIOTR ZAJĄC, Giustina VON KAMEKE
Paris Science Trip (PARIS - FRANCE)	Paul Zwick	9	Nadine HAAS, Mariana Almeida RODRIGUEZ, Mariana NUNES DIAS, Gaspar ARVAL, Maximilian Gustav GERLINGS, Valeria MASCHEVA, Melina ARGYROU, Tobias Bastian OBEL, Joseph THAM, Naz TOYGAR, Alina Jade LIEDTKE, Ishaana Mushunuri RAO, Carl Mattias DACKNER, Ari Samuel THAM, Jaron Robert SHEPRO, Jordan VAN ZANDT, Erik NACKBERG



AWARENESS-RAISING MEASURES

Encouraging and urging young people to develop their own projects and to participate in the national Jonk Fuerscher contest, either individually or as a team, is one of the most important missions of the Fondation Jeunes Scientifiques Luxembourg.

In this mission, schools provide an important recruitment platform. They help spreading information about the Foundation's activities and in particular those related to the national contest.

As the statistics show, it is important to emphasize that the discovery of young scientists is done largely through these school presentations.

In partnership with the SCRIPT, which provided us with its platform for the distribution of information to the schools and their teachers, the foundation held 19 presentations in various institutions across the country this year. In this way, the foundation was able to reach and encourage about 950 students to develop a project and participate in the national Jonk Fuerscher contest.

The Foundation also seeks to join forces with schools around this mission in order to ensure the detection of possible young scientists. These partnerships with schools are reflected in the signing of an agreement.

We are pleased to have signed five more partnership agreements again in 2019.



SCHOOLS	PRESENTATION DATES	NUMBER OF PRESENTATIONS	NUMBER OF STUDENTS REACHED
Atert-Lycée Redange	25.11.2019	2	225
Lycée Michel Lucius	10.10.2019	2	100
Lycée Ermesinde Mersch	02.12.2019	1	20
Lycée Michel Rodange	16.12.2019	2	40
Lycée Classique d'Echternach	08.11.2019	2	75
Athénée de Luxembourg	20.11.2019	1	25
Lycée Hubert Clément	04.11.2019	1	75
International School of Luxembourg	18.11.2019	1	30
École Internationale Differdange / Esch-sur-Alzette	27.11.2019	1	20
École Privée Notre-Dame Sainte-Sophie	29.11.2019	4	100
Lycée Privé Emile Metz	06.11.2019	1	40
Lycée Classique de Diekirch	18.12.2019	1	200
TOTAL		19	950



THE EXPO-SCIENCES 2019

INTERNATIONAL DELEGATIONS, THEIR PROJECTS, THE LAUREATES

ORGANISATION OF THE 10TH EDITION OF THE EXPO-SCIENCES LUXEMBOURG

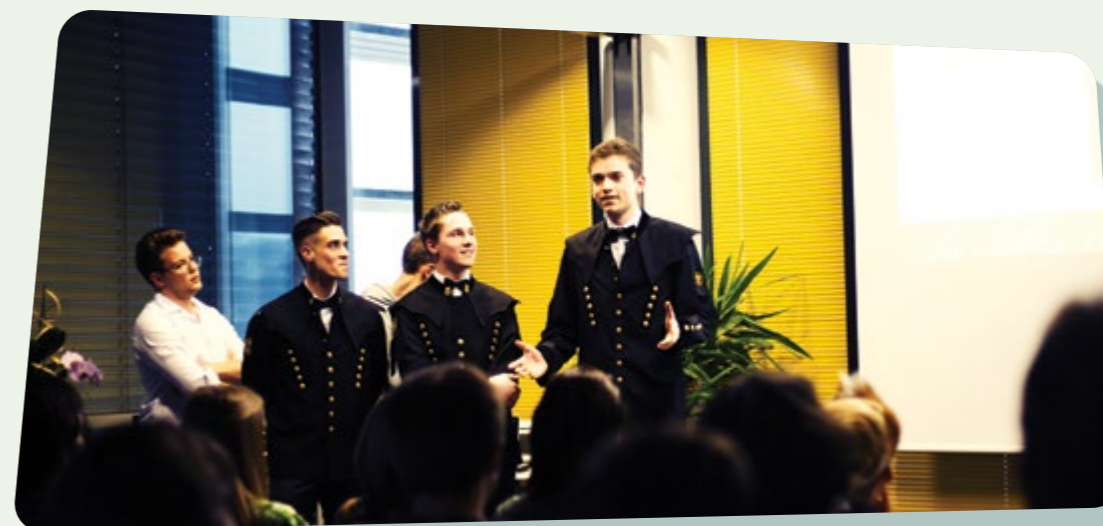
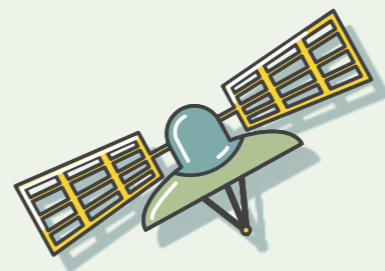
The 10th edition of the Expo-Sciences Luxembourg was held at the Forum Campus Geesseknäppchen in Luxembourg from 21st – 24th March 2019 under non-competitive conditions, alongside the 48th edition of the national Jonk Fuerscher contest.

In comparison to the previous edition, the 2019 edition brought twice as many international delegations from all over the world to present the projects of the winners from their respective countries. This is yet another indication that the Expo-Sciences Luxembourg attracts more and more international laureates who are excited to come to Luxembourg to present

their work and exchange ideas with our young national scientists.

With the many guests, coming from near and far (Spain, United States, Russia, Morocco, Tunisia, to just name a few) the weekend allowed participants from different nationalities and cultures to spend a moment of sharing customs and exchanging ideas, inviting to a scientific and intercultural dialogue. The Forum Geesseknäppchen was transformed into a true international hub for innovative and creative ideas highlighting science.

In addition, the young people were able to benefit from the testimonies of our 2019 key note speakers Victoria Bloodworth and Morten Lennholm, who shared with the students their journey towards a professional career as a scientist.



INTERNATIONAL DELEGATIONS, THEIR PROJECTS, THE LAUREATES (next)

COUNTRIES	PROJECT TITLES	PROJECT HOLDERS
Spain	Insight into the impact of methylation and demethylation pathways in DNA physical properties	Eric Matamores Morales
Spain	Parks and gardens, friends or enemies? Allergenic potential of the green spaces of the neighborhood of Santa María de Gracia	Ana Munuera Gázquez
Spain	Development of a cryptosystem for 2.5D surfaces that preserves the format.	Mateo Rodríguez Polo
Spain	VR	Sergio Romero Castillo, Javier Polo Castillo, Sara Lera Longares
France	L'interprétophone	Joris Diaz, Matéo Douay, Bastien Noel
France	Les fluides s'écoulent, les fluides c'est cool!	Nadia Ivanoff, Enzo Borges, Nathan Chapelain, Oscar Perianayagassamy, Nathan Garde
France	Osnis Sonores, Cap sur les labos	Camille Berjonneau, Pierre Lemos
France	T'en Parles?	Vincent Marin-Manens
Belgium	The breathing explained to the children, games and other funny things	Cloé Pothier, Noémie Maloir, Ambre Scelfo, Deuigyane Deluau
US	Can oils improve the effectiveness of Antibiotics?	Rayna Malhotra
US	The Biochemical Interactions of Cardiac Ion Blocking Agents and Optical Coherence Tomography in vivo for Cardiovascular Disease	Rhea Malhotra
Ireland	Investigation of the antimicrobial effects of both aerial and root sections of selected plants against Staphylococcus aureus	Simon Meehan
Austria	Reprocessing of tailings at the "Steirischen Erzberg"	Hubert Haidn, Christoph Gruber-Veit, Julian Edlinger
Austria	Icing behavior of technical surfaces	Tobias Hinterberger, Oliver Jakisch, Tobias Böhm, Florian Kellner, Michael Schier
Hungary	Saving lives with measuring physical balance real-time	Tamas Jonas Laufer
Kyrgyzstan	Where in the world can we find natural walnut forests?	Daniyar Usenbaev, Aidar Torobaev, Nikita An
Netherlands	uCycle	Koen Hendrikse, Sascha Veenstra, Laura van Dijk, Jeroen Bodde
Russia	Development of a robotic electromechanical system of steering-free control for small-sized vehicles	Roman Prokhorov

NATIONALITÉS	TITRES DES PROJETS	PORTEURS DE PROJETS
Russia	Development of the device "Sober driver", which allows to limit access to driving the driver in a state of alcoholic intoxication	Eugenii Mikhailov
Russia	Non contact identification of the diameter and other parameters of bar (wire) metal on the basis of Eddy currents	Iuliia Karavashkina
Slovenia	New Techniques of Sample Preparation and Stabilization of Paper with Pigment Verdigris	Mitja Denac, Bor Kolar Bačnik
Slovenia	Positron Emission Tomography with Time-of-Flight Capabilities-Improvement of PET Scanner for Medicinal Use	Miha Pompe
South Africa	River Pollution Analysis and Clean-up Solutions	Joshua Nicholas Andrews
South Africa	Solar Study Box	Abraham Phillipus Pretorius
South Africa	The Impact of Urban Expansion on Bushbaby Numbers	Adriaan Bernard Theron
Turkey	An alternative study for increasing effectiveness and economy of drugs by using original stimuli-responsive microspheres	Ali Kaan Isik
India	Water Saving Machine	Vaishnavi Anant More, Anushka Sandip Bhagwat
Bulgaria	Acoustic properties and resonance of bottles and test tubes	Georgi Ilyanov Ivanov
Bulgaria	Exogenous Finance Factor in the Capital Asset Pricing Model	Stefan Martinov Hadzhistoykov
Bulgaria	Analyzing and artificial generation of music using machine learning	Dimo Chanev
Tunisia	Green Africa... humidity is the key	Zeinab Nahali
Tunisia	Smart Hand Noui for Deaf People	Nourthen Dhibi
Tunisia	The robot in the service of indoor plants	Youssef Bettaieb
Morocco	Eco-o2	Lina Meknassi, Hala Tebbane
Morocco	Glove controlled drone	Adam Boukhssimi





THE EXPO-SCIENCES: SURVEYED AND QUANTIFIED

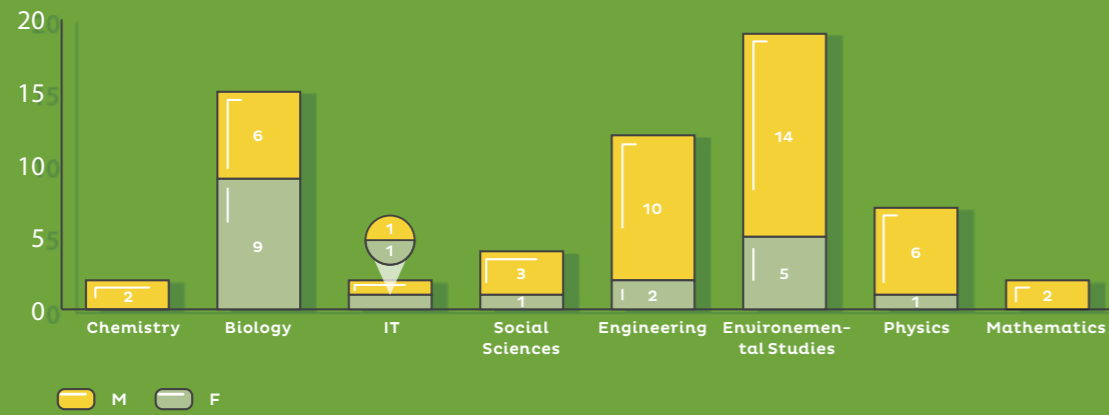
The numbers show that the Expo-Sciences Luxembourg is attracting more and more international laureates who are excited to travel to Luxembourg to present their work and exchange ideas with our young national scientists.

As a matter of fact, the Expo-Sciences welcomed twice as many international guests in 2019 as in the previous edition, with 63 participants presenting 35 projects.

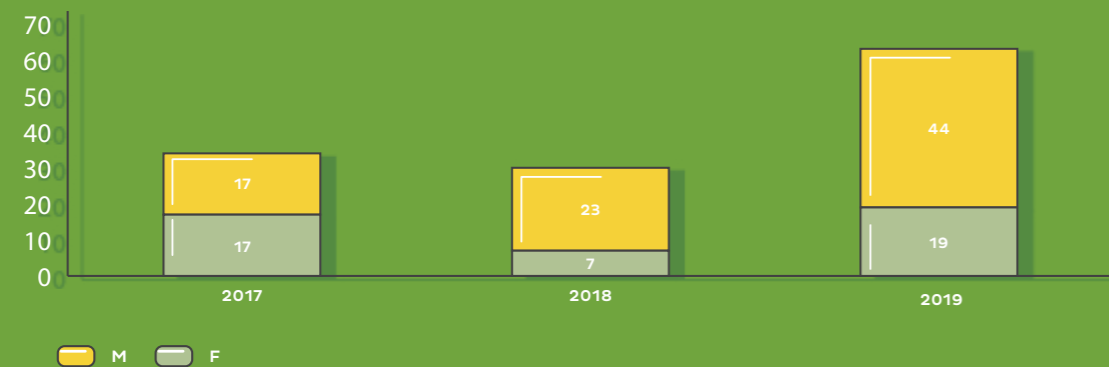
The Erasmus+ Mobisciences program, supporting the sciences and interculturality, was integrated again this year into the Expo-Sciences Luxembourg and was once more a great success.

In addition to the above, the young scientists were invited to participate in a cultural night of sharing local customs and exchange.

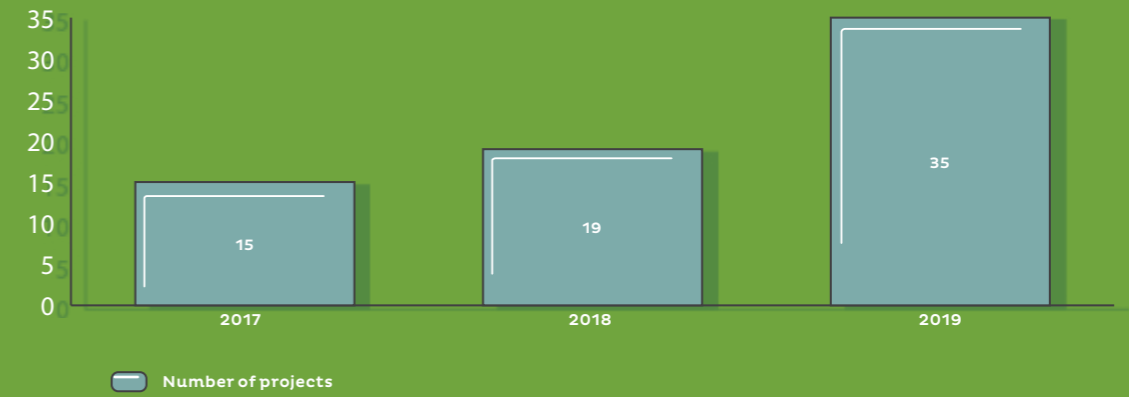
TOTAL PARTICIPATION 2019 (by gender and field)



SUMMARY OF PARTICIPANTS 2017 - 2019

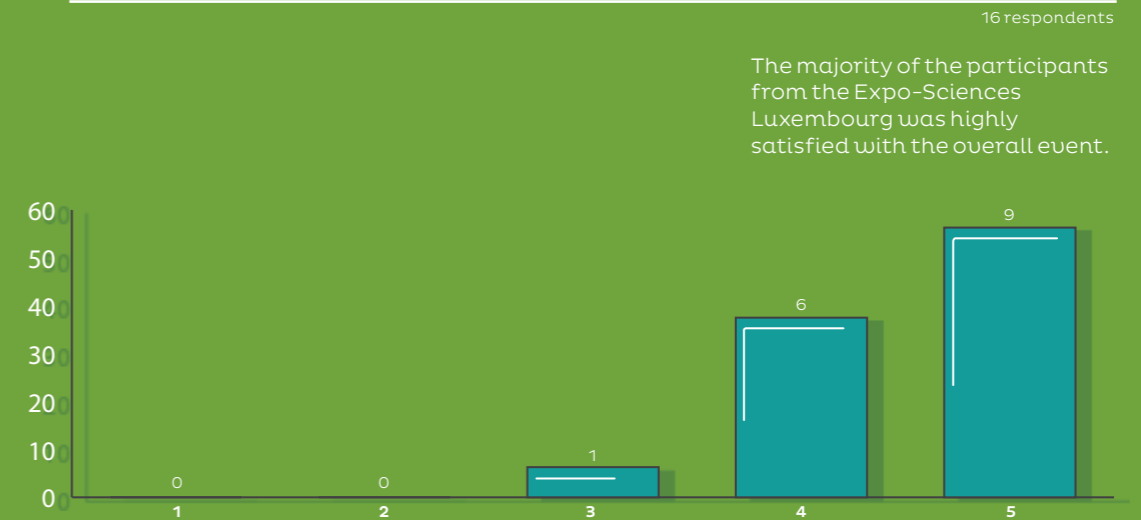


SUMMARY OF PROJECTS 2017 - 2019

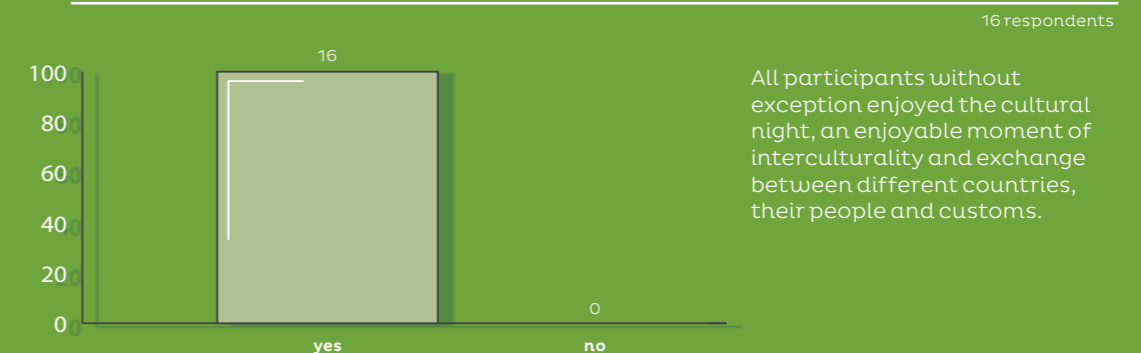


SATISFACTION SURVEY

HOW SATISFIED WERE YOU WITH THE EVENT?



DID YOU ENJOY THE CULTURAL NIGHT?

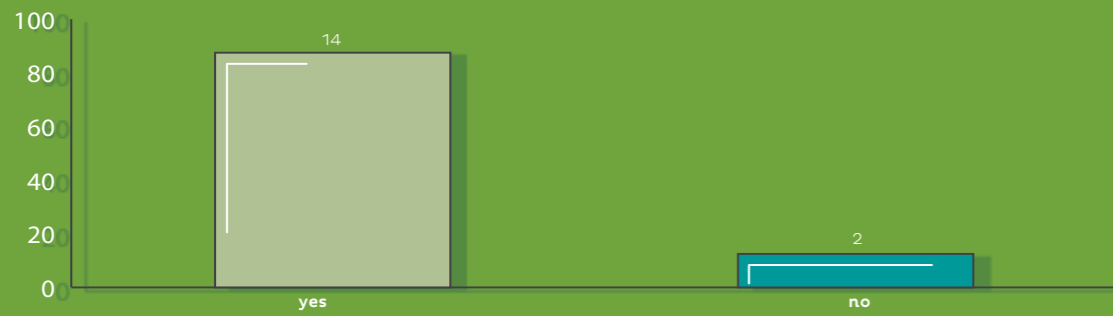


SATISFACTION SURVEY (next)



DID YOU ENJOY THE WORKSHOPS?

16 respondents

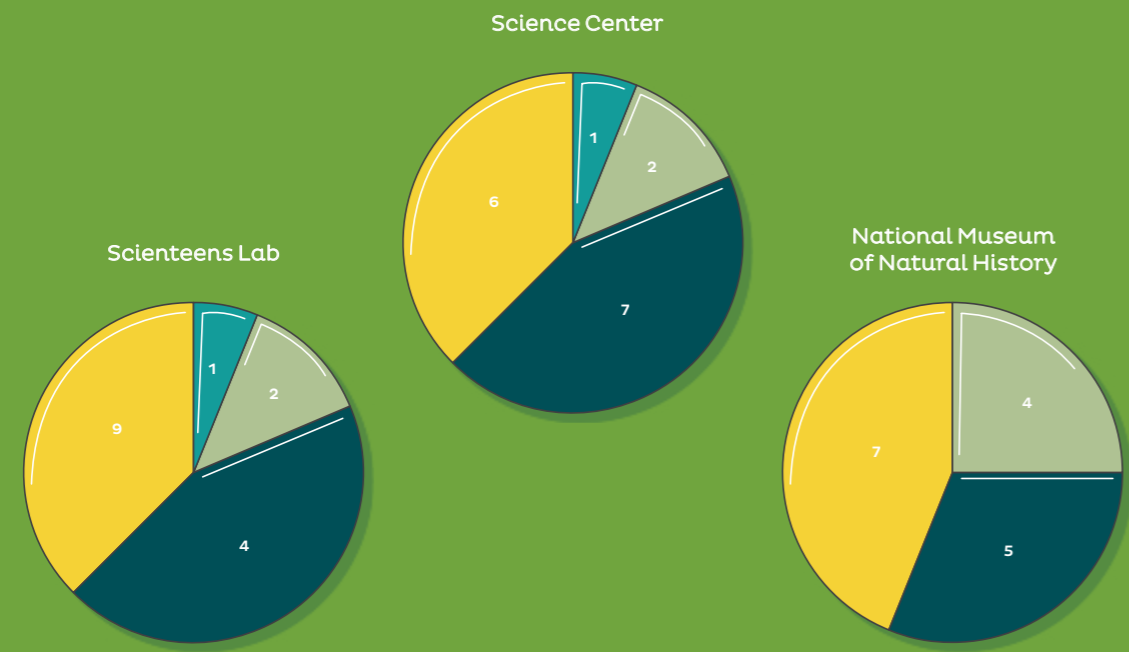


DID YOU ENJOY THE CULTURAL PROGRAM?

16 respondents



The feedback on the cultural program was generally positive. However, it was pointed out that the workshop at the Scienceteens Lab was mainly aimed at maths enthusiasts and was less adapted to young people with other profiles.



FNR AWARD



THE FOUNDATION, RECIPIENT OF AN FNR AWARD!

On 25th October 2019, at the Halle des poches à fonte in Belval the Luxembourg National Research Fund (FNR) announced the scientific initiatives and research projects that had been selected by its jury to be worthy of an award in 2019. The award ceremony was attended by Mr Claude MEISCH, Minister of Higher Education and Research.



A total of six FNR Awards were granted in three categories, each prize endowed with 5,000 euros rewarding researchers or scientific promoters who, during the past year, have demonstrated extraordinary efforts in areas such as scientific importance, innovation or communication.

The work of the Fondation Jeunes Scientifiques Luxembourg, represented by Mr Carlo HANSEN, Ms Sousana EANG and Ms Natalia SLIOUTOVA, was rewarded with an FNR Award 2019 in the category "Outstanding Promotion of Science to the Public" for its organisation of the national Jonk Fuerscher contest.

The decision of the jury members of the FNR was motivated by the following three arguments:

"It is an established contest, giving young people an opportunity to engage in and come up with scientific projects and exchange with like-minded people.

Many former students end up doing scientific studies or pursue science-related professions.

The contest has good visibility in traditional and social media."

PREPARATORY TRAINING

While embarking on a scientific project – be it alone or in a group – is already quite educationally challenging and shaping for the young scientist, preparatory training had been organised specifically to give the participants the necessary tools to present a scientific project.

How to structure a presentation? How to bring the listener to the root of their personal reflections?

A training course addressing these questions to prepare for the presentation of a scientific project has thus proven to be particularly useful to acquire the necessary know-how for the description, interpretation and appreciation of projects. Indeed, a researcher is not necessarily a good presenter, however he or she must succeed in "selling" their project to the reviewers.

Moreover, national and international competitions require the delivery of a project in multiple formats. At first glance, these processes appear complicated. However, the participants were supported in these various steps by offering them such preparatory measures.

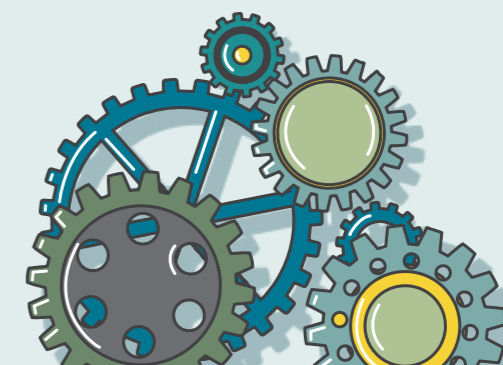
The foundation offered two training sessions to the young people, on 5th and 6th March 2019, led by Cordula Schnuer (journalist from the Luxembourg Times) and Serge Quazzotti (Director of the IPIL).

Thanks to Serge Quazzotti, an integral part of the training focused on intellectual property, which raised great interest among the young participants.

What criteria must the invention meet in order to obtain a patent? Are discoveries, scientific theories concerned?

As part of the preparatory training, young scientists were therefore also given access to the basic concepts of intellectual property and the criteria for obtaining a patent.

Both information sessions were a great success, which shows the importance of an information platform for young scientists. This interest continues to grow similarly in the context of the ever-increasing level of projects.



THE INTERNATIONAL ACTIVITIES

INTERNATIONAL COMPETITIONS

Intel ISEF – USA

The 2019 Intel ISEF, the world's largest international pre-university science competition, was held from May 12-18, 2019 in Phoenix. Thanks to our sponsor Capitalatwork, Luxembourg was one of the 80 countries represented, with the young Henri Ahola, winner of the national Jonk Fuerscher contest.

Henri Ahola (15 years old) from the European School Luxembourg I presented his "8-bit CPU visualisation tool": his project is based on the creation of a tool to visualize the operation of a computer processor. It is a simplified version of a processor, explaining how data moves inside an operating computer.

During the competition, Henri Ahola attracted the attention of the public specifically in the field of education, who emphasized that this tool is revolutionary in facilitating the understanding of a rather complex processor.

In addition to the above, a new agreement was signed during the 2019 edition of the contest between the representatives of Intel ISEF and the FJSL: the participation in the Expo-Sciences Luxembourg will officially be one of the prizes awarded to a young INTEL ISEF winner as of 2020.

The Intel ISEF (Intel International Science and Engineering Fair) is the world's largest science competition that takes place each year in a different city in the US (Los Angeles, Pittsburgh and Phoenix until 2019). It brings together about 1800 high school students from more than 80 countries, regions and territories, who are lucky enough to win prestigious awards, worth a total of almost \$4 million.



CASTIC – CHINA

Since 2012 the Fondation Jeunes Scientifiques Luxembourg (FJSL), with the precious support of the Fondation Nicolas and Jean-Paul Lanners, has been sending a laureate of the national Contest Jonk Fuerscher to CASTIC, Asia's largest scientific contest.

This year Krzesimir Hyżyk (13), student of the European School of Luxembourg I, won this prestigious award and was the youngest contestant at the 34th edition of the CASTIC (Macao) with his project combining computer science and mobility: "Safe Trip Home From School".

Based on traffic simulations conducted on his daily commute, Krzesimir was able to identify, how the installation of additional traffic lights would improve the safety for pedestrians on two specific junctions. His project – inspired by his everyday life – convinced the jury of CASTIC to honour him with a bronze medal.

In 2018, a formal agreement between CASTIC and FJSL representatives has been established, which officialises and strengthens the good relations that have existed since 2012 between the two organisations. Through this agreement, the FJSL once again awarded the Expo-Sciences Luxembourg prize to a young Chinese national winner.

CASTIC – China Adolescents Science and Technology Innovation Contest: CASTIC is organised with the help of the China Association for Science and Technology (CAST), the Ministry of Education and other important governmental organisations. CASTIC is designed for young students aged between 12 and 20 who are interested in science. It brings together about 500 young scientists from China and nearly 100 international competitors from over 20 countries.



EUCYS - BULGARIA

The 31st edition of the European Union Contest for Young Scientists (EUCYS) took place from September 13th–18th in Sofia, Bulgaria, and brought together 38 countries from all over the world as well as some European Schools. Three young scientists, who won their EUCYS participation through the national Jonk Fuerscher contest in March 2019, represented the Grand Duchy of Luxembourg with two projects.

The first project, the “Analysis of Glyphosate Residues in Honey” by Anaïs Croquet, Dylan Ramsurrun and Marie Croquet (Lycée Michel Lucius) is a study on glyphosate residues in different honey samples, carried out through the ELISA technique.

The second project, “Putin’s Russia and How Young People React to It” by Marina Yakubova (Lycée Aline Mayrisch) is an in-depth analysis of modern-day Russia and its political history since Vladimir Putin first became president. Marina focuses her research in particular on the young population and its reaction to Putin’s regime.

Since 2018, the participation at the Expo-Sciences Luxembourg is being distributed as an official prize at EUCYS. Zvezdin Besarabov (18), a Bulgarian young scientist, was the lucky winner of this year’s Luxembourg Expo-Sciences award. His project “Distributed Creation of Machine Learning Agents for Blockchain Analysis” is set in computing and proposes a novel blockchain network protocol that can find better neural network models for a particular task.

EUCYS - European Union Contest for Young Scientists:

EUCYS is the most important student science fair in the EU, showcasing the best scientific achievements by student in the EU and beyond.

EUCYS is part of the “Science with and for Society (Swafs)” activities managed by the Directorate-General for Research of the European Commission.

It was set up in 1989 to promote the ideals of co-operation and exchange between young scientists.



TISF – TAIWAN

The 17th edition of the international contest TISF (Taiwan International Science Fair) took place from January 24th until February 2nd 2019 in Taipei (Taiwan).

This was the very first time that Luxembourg was represented amongst the 23 participating countries, thanks to the FJSL and its sponsor, Paul Wurth S.A.

In March of 2018 Alex Muller, Maverick Schmit and Valentin Ringlet participated in the National Contest Jonk Fuerscher, and were able to qualify for the TISF contest with their remarkable project “A Modular Construction 3D Printer”. The project is a particular 3D printer that can be used to print objects out of concrete! This concept was developed to improve the construction industry by being able to print entire buildings out of concrete.

The three young men impressed the Taiwanese judges when defending their project and got thus second place in engineering!

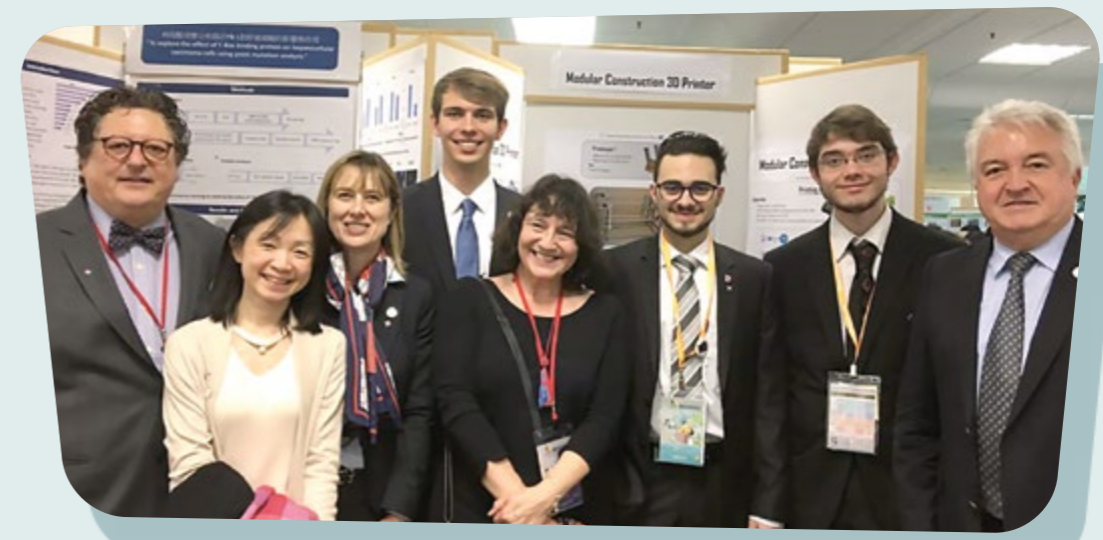
This was not the first time that the dynamic team participated in an international competition: they had participated in the national Jonk Fuerscher contest before, in 2017 and qualified for a place at the Brazilian contest MOSTRATEC, where they left a strong impression and got awarded

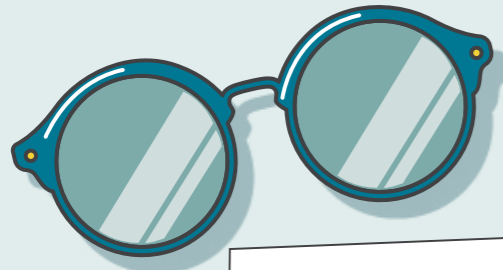
the honourable mention of “Outstanding project”.

The arrival of our young scientists in Taipei didn’t go unnoticed. In fact, they had the great honour to be invited by Mrs Tania Berchem (Executive Director of the Luxembourg Trade and Investment Office in Taipei) who, on top of welcoming them in her offices, further showed her support by visiting them directly at their booth on Friday, 31st January, accompanied by Mr René Stoltz, Managing Director Asia of Paul Wurth International S.A.

As part of the FJSL’s goal to grow their partnerships on an international level, a new agreement was concluded between the organisers of the TISF and the FJSL, making the Expo-Sciences Luxembourg an official award for a Taiwanese young scientist/team from 2020 onwards.

TISF – Taiwan International Science Fair: Taiwan International Science Fair (TISF) is a science research competition for high school students from grades nine through twelve. With the mission of identifying and nurturing talented young scientists, TISF brings together around 250 domestic finalists and 40 students from 20 nations from various fields of science.





INTERNATIONAL ACTIVITIES

LIYSF - UK

London International Youth Science Forum

The 61st edition of the London International Youth Science Forum (LIYSF) took place from July 24th to August 7th 2019 at the renowned Imperial College in London and was opened by HRH The Princess Royal. Thanks to the Alphonse Weicker Foundation, presided by Kik Schneider, three students of the Atert-Lycée Redange had the opportunity to participate and represent Luxembourg after qualifying at the national Jonk Fuerscher contest.

Syluie-Anne Soares Pereira (17), Emily Cordier (17) and Jean-Marc Furlano (17) presented their "Immunogenic nucleic polypeptide complex for influenza virus neutralisation" project: Their research focuses on a way to neutralise the influenza virus by modifying certain DNA and RNA sequences to prevent a potential infection from spreading.

Between the speeches and plenary lectures held by renowned scientists such as Sir Venki Ramakrishnan, Nobel laureate and President of the Royal Society, or Prof. Lady Jocelyn Bell Burnell, pioneer in astrophysics, between seminars, visits to research institutions; the LIYSF was rich in experiences and inspirations.

The LIYSF aims to give a deeper insight into science and its applications and to develop a greater understanding between young people of all nations.



DLR - GERMANY

Deutsches Zentrum für Luft- und Raumfahrt



Christophe Luis (16), winner of the national Jonk Fuerscher contest in 2019, had the opportunity to visit the DLR (Deutsches Zentrum für Luft- und Raumfahrt) and the EAC (European Astronaut Centre) in Cologne on 11th April 2019, thanks to Sogeprom's co-sponsorship. During this visit he was invited to participate in many workshops, allowing him to discover the training and life of an astronaut.

The young researcher won this award with his incredible project "Analysis of the Blackett effect based on the detected cosmic muon flux with the AMD5 detector".

ISSI - ISRAEL

Weizmann Institute – Summer Camp

For the very first time this year, the Fondation Jeunes Scientifiques Luxembourg (FJSL) – with the precious support of the Matanel Foundation – was able to send a laureate of the national Jonk Fuerscher contest to the International Summer Science Institute (ISSI) in Israel.

During 2019's contest young scientist Camilla Hurst, student of the University of Oxford, won this prestigious award. Camilla has had a prolific past with the FJSL: at the age of only 18, she has already won prizes at four national contests in addition to the 4th prize in her category at the 2017 International Science and Engineering Fair in Los Angeles.

Her new project in engineering: "The Wheelchair Accessibility Belt (WAB)" is a prototype of a complimentary device, which can be manufactured at low cost and easily be attached to the wheel independently by the user to increase the traction between the wheelchair and the ground, thereby facilitating accessibility to the outdoors for wheelchair users. She states in her project, that the inclusion of disabled people in outdoor activities increases both their mental and physical health, which the WAB can facilitate and thus promote.

From July 2nd – 25th 2019, Camilla experienced a month-long program full of research, field trips and unforgettable experiences. She fully immersed into scientific research in the campus labs: during the first three weeks, she was paired up with young scientists from Australia, South Korea, and the United States for an experimental investigation of their common project. In addition to attending lectures by Weizmann Institute scientists, she conducted field research in the Judean Desert and the Negev, acquainting her with the unique ecological, geographical, geological, zoological, and archaeological characteristics of the area.

The Dr. Bessie F. Lawrence International Summer Science Institute (ISSI): Every summer since 1969, the Dr. Bessie F. Lawrence International Summer Science Institute (ISSI) brings together approximately 80 highly talented pre-university students from all over the world to experience the challenges and rewards of scientific research and to learn more about the Weizmann Institute of Science and life in Israel.



INTERNATIONAL ACTIVITIES (next)

YSM - PORTUGAL

Youth Science Meeting

With the support of Mady Delvaux, the Fondation Jeunes Scientifiques Luxembourg was once more able to send a laureate of the national Jonk Fuerscher contest to the 37th edition of the Youth Science Meeting (YSM) in Coimbra (Portugal). In 2019 Alex Cowan, Eunju Moon, and Seongmin Park (all aged 17), students of the International School of Luxembourg, won the Prix Mady Delvaux with their project in environmental science: "Mycelium for future". The purpose of their project was to gain a deeper understanding of the properties of mycelium, testing to what extent it could replace synthetic plastics to create a more sustainable world. Thus, they created plastic-like materials from mycelium, examining its physical properties such as fire-resistivity, strength, flexibility, and waterproofness.

From July 23rd – 30th, Seongmin Park was among more than 70 participants, aged between 15 and 25 from 8 different countries, delving into a world of innovations in a city deeply rooted in traditions. They had all been invited to discover Coimbra – the

"city of students". Seongmin was given the opportunity to present his own science project to other young scientists from all over the world, and attend lectures and workshops from different scientific fields. In addition to this wonderful program, Seongmin was awarded the "Mr. Worldwide" prize by the organizers of the AJC for his exemplary conduct and networking skills!

Youth Science Meeting (YSM): The Portuguese Youth Science Association (AJC) was created in 1987 to serve as the basis for the organization of the Youth Science Meeting (EJC). It is still the only scientific association formed and directed exclusively by young people, still living the motto that served as the genesis: "Youth Science for Young People." The AJC was one of the founding members of MILSET (Mouvement International pour le Loisir Scientifique et Technique), an international entity that brings together partners in the field of scientific promotion and dissemination.



ESI - ABU DHABI

Expo-Sciences International by MILSET

The latest edition of the Expo-Sciences International (ESI) – organised every other year by MILSET (The International Movement for Leisure Activities in Science and Technology) – took place from September 23rd until September 27th in Abu Dhabi and assembled 57 countries from all over the world.

Three young scientists represented the Grand Duchy of Luxembourg with two projects. The three won the ESI participation – sponsored by Mr Ralph Letsch as the Hugo Gernsback award – through the national Jonk Fuerscher contest in March 2019.

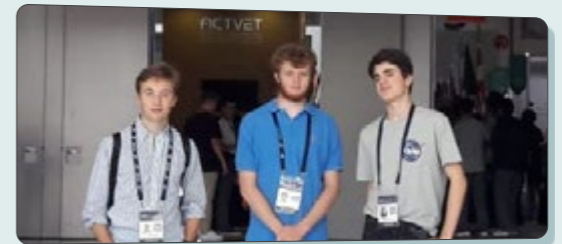
Together with 1200 international participants, they had the unique opportunity to exhibit their scientific projects in front of thousands of visitors, industry professionals as well as school classes, in addition to participating in various workshops. They were also invited to take part in the MILSET Young Citizens Conference – which counted merely 100 hand-picked participants, based on their applications – where they discussed the development and impact of AI technology.

With their project "Game Theory in practice" Oscar van Bommel and Lukas Kooy (Lycée Michel Lucius) tested the validity of the said theory using the 2/3 of average game. In short, game theory is the study and

application of mathematical models to situations in which participants have to make rational decisions to better their chances in situations in which the outcome is highly dependent on the choices of other participants.

The second project, "Capescrew: Twist your life around" by Niccolò Hurst (Imperial College London) is a proposed design process for a screw-capped bottle opener aimed to help people with limited dexterity or a hand injury.

MILSET – Mouvement International pour le Loisir Scientifique Et Technique: The MILSET is a non-governmental, non-profit and politically independent youth organisation. It aims at developing scientific culture among young people through organising science and technology programs, including science fairs, science camps, congresses and other activities of high quality.



PARIS SCIENCE TRIP

Between June 14th and June 16th, 11 young scientists set out to discover Paris as part of their award that they received during the 48th edition of the national Jonk Fuerscher contest. This award, sponsored by Electro Bobinage Zwick, entailed a scientific and cultural trip to the French capital.

The program, proposed by the FJSL, included a visit to the renowned Cité des Sciences, where they were welcomed by Mr Jean-Claude Guiraudon, president of CIRASTI and presented with honorary medals for their scientific projects.

The young scientists had the opportunity to discover Paris through science themed tours and a visit to the National Museum of Natural History where they could enjoy the "Gallery of Evolution" and "Gallery of Palaeontology and Comparative Anatomy".



INTERNATIONAL ACTIVITIES (next)

CGÉNIAL - FRANCE

On May 25th, 168 high school students gathered at the Cité des sciences et de l'industrie in Paris for the 12th edition of the CGénial Competition. In 2019, 55 projects had been selected for the competition and it was the young Giustina Von Kameke (11 years old) from the European School of Luxembourg I who was selected at the national Jonk Fuerscher contest to represent Luxembourg.

Her environmental study project "LuFtiG" develops a theory that bacteria (cyanobacteria or blue algae) could be used to purify the air thus slowing down climate change. These bacteria filters could be installed i.e. in cars to filter fine particles and metal compounds out of the air.

During the event, the young scientist and her project made a strong impression and attracted the attention of many teachers, participants, and visitors, who were all impressed by the global understanding of a major environmental issue at such a young age and the quality and professionalism of its presentation.

At the CGénial competition ceremony, the young scientists are awarded prestigious prizes based on their age and the quality of their work. Expo-Sciences Luxembourg has been a prize since 2018 and was awarded to two French teams in 2019.

The CGénial Foundation was created in 2006 with the support of the Ministry of Higher Education, Research and Innovation to promote science, technology and related professions among middle and high school students. Supported by professionals from the world of education and business, the Foundation coordinates 4 key actions: the "CGénial competition", "Engineers and Technicians in the Classroom", "Teachers in Companies" and "Yes we code"!



MOBISCIENCES AWARD 2019

Since March 2018 (national Jonk Fuerscher competition), about sixty young people from the five Euro-Mediterranean countries that are France, Spain, Morocco, Belgium, and Luxembourg, have travelled throughout Europe to participate in events celebrating science and exchanging ideas and practices about science and interculturality.

The objective of this Erasmus+ project, started by the Fondation Jeunes Scientifiques Luxembourg in partnership with the four other countries, is to work towards the development of scientific culture among young people aged 12 to 25 through these exchanges.

This Erasmus+ Mobisciences programme of the European Commission was renewed in 2019 by Anefore asbl, the national agency responsible for the implementation of European programmes in the fields of education, training and youth. The submitted application received a score of 73 out of a total of 100 points in the qualitative evaluation by the European Commission's external experts. It was ranked 7th out of 19 projects.

Anefore's financial support enabled the realisation of five symmetrical exchanges between Luxembourg, Belgium, France, Morocco and Spain during the year 2019.

ERASMUS MOROCCO

The 4th edition of the "Printemps des Sciences Fez - Meknes" took place from April 18th to 22nd 2019. Welcoming national and international projects alike, around twenty scientific projects were presented by almost one hundred participants taking part in the event. The projects emphasize on the scientific research of natural and social sciences, as well as the intercultural exchange, while the event was topped off with an exciting cultural programme.

Alexandre Baptista, Felix De Vleschauwer, Zheng Zhu (Lycée Michel Lucius) and Ashiquil Islam (Lycée des Arts et Métiers) were the four young scientists who represented Luxembourg with the following projects:

- "Zhentrifuge": Alexandre, Félix and Zheng wanted to create a centrifuge that was cost-efficient and practical to use. In fact, a common centrifuge could cost anywhere between 1000,- € and 5000,-€, while the three young scientists managed to create a centrifuge for less than 100,-€.

Their research could be used to provide cost-efficient centrifuges to labs situated in lesser developed countries.

- "Wie sauber ist das Wasser?": In his project Ashiquil discusses an important and well-known problem: the lack of water. A problem that is linked to an excessive use in our everyday lives and in the industry, but also to global warming. A shortage that has major consequences for humanity.



INTERNATIONAL ACTIVITIES (next)

ERASMUS BELGIUM

Building on the success of the past editions, an actual science city was built at the Brussels Expo in 2019 and ran for several days in the presence of Mrs Véronique Dehant, award-winning chief of the Reference Systems and Planetology at the Royal Observatory of Belgium and Professor at the Catholic University of Leuven. Experiments, labs, animations, conferences, workshops and exhibitions were part of the program, in addition to interactive booths showcasing VR drone, soft mobility, robots and environmental experiments. The 33rd edition of the Expo that took place during the I love Science Festival welcomed 118 projects from 450 participants.

Augustin Rendu (Lycée Michel Lucius), Myriam Alexandra Bartolomé (École Sainte-Sophie), Marcus Dackner and Samuel Weisz (International School of Luxembourg) were the four young scientists to represent Luxembourg with the following projects:

- "Hat ein Bach dieselbe biologische Funktionsweise wie ein Aquarium?" Myriam compared biological characteristics of a creek and an aquarium to find out whether the artificiality of an aquarium had any biological consequences.

- "Complete meal nutrients and caloric intake" by Augustin Rendu, combines a scientific and humanitarian approach: it shows a way to create a perfectly nutrient meal suitable for anyone while being as cost efficient as possible.

- "The Multigenerator" was developed by Samuel Weisz and Marcus Dackner, who are trying to create a multi-purpose generator that can use all available renewable energies to create electricity at any time.



ERASMUS FRANCE

In June of 2019 it was France's turn to welcome young Europeans to Toulouse (ASPAR, Roserais/Amouroux district). The event offered scientific and recreational workshops led by education and environmental associations, in addition to offering national and international young people the opportunity to present their scientific research projects.

Alina Liedtke, Ishaana Rao (International School of Luxembourg), Daria Nikolova (European School I), and Eleonora Mannino

(European School of Luxembourg II) were the four young scientists representing Luxembourg with the following projects:

- "How can robots affect the lives of disabled people?" Alina Liedtke and Ishaana Rao developed the idea that the use of robots should be implemented in our daily lives. For them, robots would be a great learning device but also a creative inspiration, not to mention the daily help that a robot could provide.

- For Daira Nikolova and Eleonora Mannino's project "Social Media and our perception of Beauty", the two girls collected data through a survey to measure the impact social media has on our perception of beauty. Through this research, they also attempted to measure the growth of psychological pressure nurtured by the use of social networks.



ERASMUS SPAIN

The 28th International Congress of Young Researchers (ICIJA) took place between June 24th and June 28th 2019 in Zaragoza, Spain. This edition welcomed national and international projects, themed around the scientific procedure in natural and social sciences. The intercultural exchange was supported by a rich program and a variety of activities.

Mariana Nunes Dias, Nityapriya Hari Krishnan, Nor Aimi Binti Sefex Afenday and Nhu Khnah Lê (Lycée Michel Lucius) qualified to participate in the congress during the 2019 edition of the national Jonk Fuerscher contest in Luxembourg. The 4 young scientists were given the opportunity to

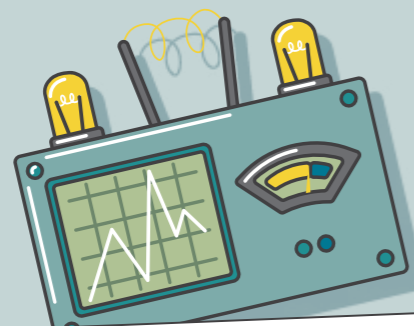
present their respective projects in front of other young researchers and the local press.

Projects:

- "Les enjeux de la qualité de l'eau" is a project by Mariana Nunes Dias that analyses the importance of access to clean water in developing countries and a solution proposal at very low cost.

- "Investigating the Antibacterial Properties of Honey" by Nor Aimi Binti Sefex Afenday, Nhu Khnah Lê and Nityapriya Hari Krishnan is a project that shows the many health beneficial properties of honey exemplified by the E coli bacteria growth.





CONFERENCES

The organisation of conferences allows the Fondation Jeunes Scientifiques Luxembourg to mobilise its collaborators and peers during an evening.

Always seeking to value and inspire our young scientists, the FJSL seeks to involve young scientists alongside experienced scientists. The conferences are open to the public and

thus make science accessible to everyone – with a real effort to popularize it in order to raise awareness among young scientists as well as the public about a given issue.

In short, these conferences are a place for exchange and debate where we can generate ideas and, above all, together, stimulate change.



"TOWARDS A SOCIETY AND ECONOMY BASED ON KNOWLEDGE"

On November 29th 2019, the Fondation Jeunes Scientifiques Luxembourg and Capitalatwork invited the public to join them for an interactive conference at the Cercle Munster.

During this event, the Jonk Fuerscher Henri Ahola, laureate of the national contest 2019, presented his project "8-bit CPU Visualizer", the same project he represented Luxembourg with at the largest international science contest – the Intel ISEF – in Phoenix, AZ.

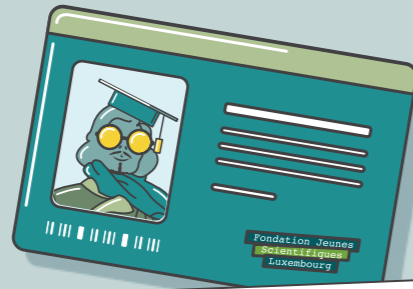
Following his presentation, Negin Baradari, also a former winner of the Jonk Fuerscher contest from Luxembourg and Allrounder, presented her eventful professional career thus far.

Magic at the Intersection of Divergent Fields:

"Technologies have been elevating our lives while concurrently infiltrating our privacy. Striking a healthy balance and relationship with our digital inclinations has become imperative. My journey as a multihyphenate has been swayed by never properly fitting in and perpetually leaning forwards.

Join me for a rollercoaster ride handling life as a third culture kid born in the Grand Duchy and discovering a world full of creativity through science, law and the arts." - Negin Baradari





PRESENTATION OF THE FONDATION

HISTORY OF THE FOUNDATION

After Germany and Switzerland, Luxembourg was the third country in Europe to organise a national science competition, calling young people to undertake a personal project in science and technology. The first award ceremony of the Luxembourgish contest took place on 20th November 1971 and was followed by many others, year after year.

The constituent association, named "Association Jeunes Scientifiques", was created on 1st September 1977. Placed under the auspices of the Minister of National Education, it had been promoting extracurricular activities in the field of science and technology education since its creation. In 1992, in line with the above, a "Fondation Jeunes Scientifiques" of public utility, was created to ensure the financing of the Association's activities, said support being essential for the organisation of the national competition. Since 2010, the Foundation also has a sponsorship contract with the Luxembourg National Research Fund (FNR), and is supported by substantial grants from the Ministry of National Education.

The current "Fondation Jeunes Scientifiques Luxembourg", abbreviated as "FJSL", results from the resolution of the parent association, created in 1977, and the Foundation created in 1992, following the statutory modifications of the Foundation and the liquidation of the Association in 2015.

Article 5, paragraph 1, of the statutes stipulates that the purpose of the Foundation is "to promote scientific culture and research among young people at a national and international level".

To this end, it annually organises the national Jonk Fuerscher contest and involves young people in other scientific activities and competitions. To achieve these objectives, it cooperates at national and international levels with other organisations having the same or a similar purpose.

On a national scale, the foundation works in particular with the National Youth Service (SNJ), the Ministry of National Education, Children and Youth, the Mérite Jeunesse, the University of Luxembourg, the National Museum of Natural History (MNHM) and with locally established schools in Luxembourg, both national and international. At the international level, it is - through its (dissolved but original) parent association - a founding member of MILSET (International Movement for Scientific and Technical Leisure), created in 1987.

In 2017, the merits of the foundation for the "Promotion of Science among Young People" were publicly recognized by the granting of the high patronage of His Royal Highness the Grand Duke. Two years later, this patronage was turned over to His Royal Highness the Hereditary Grand Duke.

In 2019, it was granted a prize by the FNR for those same achievements.

Today, the Foundation counts many members of the scientific community, young people and adults, who benefit from its efforts.

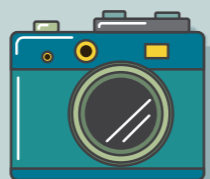
PRESENTATION OF THE MEMBERS OF THE BOARD OF DIRECTORS AND MANAGEMENT

THE EXECUTIVE BOARD

CARLO HANSEN Chairman	Self-employed, former sponsor Organiser of the European Union National Competition for Young Scientists (national organizer EUCYS)
PAUL HEUSCHLING Vice-Chairman	Professor of cellular biology at the University of Luxembourg Former Dean of the Faculty of Science, Technology and Communication
LUCIEN HOFFMANN Secretary	Former winner of the national Jonk Fuerscher contest Director of the Environmental Research and Innovation Department of the Luxembourg Institute of Science and Technology (LIST)
EMMANUEL SERVAIS Treasurer	Retired state official Treasurer of the Servais Foundation for Luxembourg Literature
SIMONE NICLOU Member	Professor at the Luxembourg Institute of Health (LIH), Department of Oncology
SIMONE THILL Member	Principal Inspector at the Ville de Luxembourg
BEN THUY Member	Former winner of the national Jonk Fuerscher contest Palaeontologist, curator at the National Museum of Natural History

THE MANAGEMENT TEAM

SOUSANA EANG Director	Master in live performance engineering, option administrative and financial management
NATALIA SLIOUTOVA Executive Assistant	Bachelor of Arts in European cultures, German studies and performing arts
LARA PEIFFER Project Coordinator	Master of Arts in Art History, Theory & Presentation
NATALIE VON LAUFENBERG Communication and PR	Master of Arts in Musicology



CARLO HANSEN

Chairman



"I joined the Jonk Fuerscher because I believe in our younger generation, in scientific and technical development, and because I have faith in humanity. I believe in a future.

Our young talents are certainly contributing to the solving of current and future problems of the world we live in, all thanks to their perseverance, ingenuity, and their creativity. The national Jonk Fuerscher contest is one of the most beautiful tools to stimulate young people and give them free rein to their ideas without any constraint."

PAUL HEUSCHLING

Vice-Chairman



"I joined the Jonk Fuerscher because I think their cause is important for a society like ours built on knowledge. I want to help these talented and motivated young people to find the intellectual and scientific development they seek and deserve."

LUCIEN HOFFMANN

Secretary



"Our house is burning down and we are looking the other way" (J. Chirac, 2002).

Faced with this observation of the destruction of nature that threatens the Earth and the survival of the human species, we must support the future generation of scientists in the development of new tools and innovative technologies for a sustainable management of our resources."

EMMANUEL SERVAIS

Treasurer



"Supporting the Jonk Fuerscher is paying tribute to the curiosity of childhood that these young people have managed to preserve, to the endurance they have since acquired, to their tenacity, their pugnacity, even their obstinacy, and equally to their resourcefulness and inventiveness. They put the theoretical knowledge into practice. They work independently and show that they can do so in teams. They look for ways to overcome obstacles. The willingness to try is more important than the greed to succeed. It's admirable, so I support them."

SIMONE HANSEN-THILL

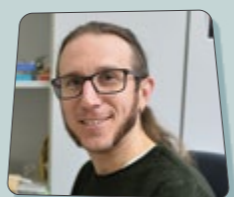
Member



"By working together, we can accelerate the research. I believe especially in the contribution of young people to this process. It is their creativity and openness to new ideas and technologies that take things further, you just have to give them a platform to do so and encourage them to persevere."

BEN THUY

Member



"From my own experience as a former young scientist, I know that the Fondation Jeunes Scientifiques is the best platform to pave the way to science for young people who are interested in it, and to open unexpected doors. I am all the more pleased to be able to support the Foundation as an active researcher."

SIMONE NICLOU

Member



"Providing role models to young people is important to support their endeavour and aspirations."

SOUSANA EANG

Director of the Fondation Jeunes Scientifiques Luxembourg



"After having had the honour of organizing the national Jonk Fuerscher contest and the Expo-Sciences Luxembourg two consecutive years in 2018 and 2019, and having followed young people to the biggest international competitions, I am convinced that our platforms are proving to be beneficial in the training of socially competent, responsible, and self-determined individuals, who will become allies that contribute to a future based on humanity and knowledge.

As a matter of fact, the results from the first year were so extraordinary that it was impossible for me not to believe in the foundation's purpose anymore. I believe in it all the more so in the light of my own experience as a schoolgirl: I saw the traditional education system smother the unique talents of many of my fellow classmates and discourage them from pursuing their passions. While I am well aware, that a lot of the research and findings in cognitive psychology and neuroscience, that study how human beings learn and blossom, are relatively recent, it still is a standardized system that is – in many cases – unsuitable for young people who function in their very own brilliant way. It's a system that does not take into account the natural levers of their minds and often abandons these types of students early on, resulting in a lack of self-confidence and a fear of failure.

Our mission is to provide young people with the opportunity to present their views in an extracurricular environment, either individually or in a team of up to 3, and learning how to share them not only on a national but also on an international level – thus resulting in the opportunity to learn from their own experience, as well as getting to know themselves and learning from like-minded people! This is achieved through a wide array of activities – in the various fields of sciences, both natural and/or social – that foster the students' curiosity, boosting their self-confidence and autonomy, their spirit of initiative and resourcefulness, a sense of freedom, as well as social skills.

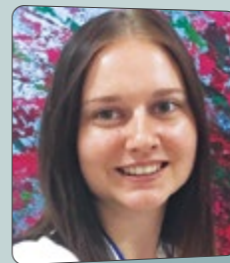
In fact, science and research have a common global objective and convey humanist values on which our platforms are based. They thus encourage open-mindedness, collaboration, and the sharing of knowledge, all while conveying the values of tolerance.

In such settings, I have found that the young people's cognitive and social intelligence as well as their creativity sprout with such strength and depth, quickly meeting and oftentimes exceeding our expectations.

Being extremely passionate myself about both the creative industry and philanthropy, I have immense admiration for our young scientists. Each of them carries a vision within themselves of the world they wish to improve and in all positive and human consciousness, I will continue to support them with great conviction in their efforts by providing them access to the means and resources they need to improve the current world and by raising awareness for their work and making it visible on a national and international scale."

NATALIA SLIUTOVA

Executive Assistant



"Two national contests and Expo-Sciences later, I believe, more than ever, that the FJSL is creating unique opportunities and exciting experiences for young people in Luxembourg and across the world. Creating and developing scientific projects, exchanging ideas with like-minded people, and experiencing new cultures: this is what both the contest and the expo are all about.

I'm happy to be part of this experience and to help young people find their love for science and research."

LARA PEIFFER

Project Coordinator



"In my opinion, one of our best hopes for the future is to provide young people with a platform to formulate and implement their own ideas and answers to the questions they are asked. It is the only way to prepare a generation of independent and critical people facing the challenges of our planet."

NATALIE VON LAUFENBERG

Communication and PR



"While having joined the Jonk Fuerscher fairly recently, I have already had the pleasure to collaborate with several of them and the surrounding team quite intensively. I am utterly amazed by the talent and motivation these young people have, and was all the more reaffirmed in the value of the FJSL, that helps said young scientists to acquire and eventually dispose of the needed assets to succeed in their professional future – regardless of their field."



RETROSPECT AND PROSPECT

In terms of identifying, nurturing and supporting young talent, 2019 proved to be beneficial. Indeed, the numbers of participants in the national Jonk Fuerscher contest increased while those of the Expo-Sciences doubled.

In addition, the jury members pointed out that the overall level of projects had increased considerably, which was proven to be true time and time again. In 2019 our young scientists distinguished themselves abroad with brilliance and largely contributed to Luxembourg's international influence through their participation in competitions and activities outside of the Grand Duchy.

To name a few:

- After presenting their work, Alex Muller, Valentin Ringlet and Maverick Schmit convinced the Taiwanese jury and were awarded the second prize in engineering at the TISF 2019 competition with their project "A modular construction 3D printer". This young team is not a first-time entrant, having participated in the national Jonk Fuerscher contest in 2017. They qualified for the Brazilian MOSTRATEC competition, where their project made a strong impression and was awarded an honourable mention for "Outstanding project".
- With his project "Safe trip home from school", Krzeszimir Hyzyk won third place (bronze medal) in China's largest competition, CASTIC. At 13 years of age at the time of his participation, he was also the youngest participant.
- With his participation in the Intel ISEF (the world's largest competition for

young scientists), Henri Ahola caught the attention of the jury with his project "8-bit CPU-Visualization tool". His project consisted in the creation of an application that facilitates the understanding of how a computer processor works.

- Camilla Hurst had the privilege to represent Luxembourg at the Summer Camp of the very prestigious ISSI Weizmann Institute in Israel, thanks to her project "The Wheelchair Accessibility Belt".
- During his participation in the Youth Science Meeting (YSM) in Coimbra (Portugal), organized by the Associação Juvenil de Ciência (AJC), Seongmin Park received the "Mr. Worldwide" award for good behaviour and outstanding networking skills from the AJC organizers.
- The European Commission's Erasmus+ Mobisciences program, promoting science and interculturality, was renewed in 2019 and proved to be another great success. The submitted application received a score of 73 out of a total of 100 points in the qualitative evaluation by the European Commission's external experts. It was ranked 7th out of 19 projects.

Moreover, in recognition of its efforts in organising the national Jonk Fuerscher contest, the FJSL was awarded the FNR Award 2019 by the Luxembourg National Research Fund (FNR) for "Outstanding promotion of science to the public", an award that is considered a great honour.

THE JONK FUERSCHER CERTIFICATES OF COMPETENCE

In carrying out scientific projects, the participants in the national Jonk Fuerscher contest inevitably demonstrate a wide range of skills.

For this reason, the foundation is meeting with the Department of Vocational Training (SFP) and is considering the possibility of establishing a certificate of competence

under the aegis of said department. This certificate will attest to a certain extent the skills of young scientists on an individual basis.

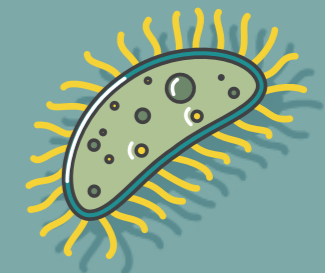
We believe that this certificate will add to their curriculum vitae and thus facilitate their university application process and job search.

THE EXPO-SCIENCES LUXEMBOURG WILL BE ONE OF THE SPECIAL PRIZES AWARDED TO THE YOUNG AMERICAN WINNERS OF THE INTEL ISEF COMPETITION FROM 2020

Whereas the participation in the Expo-Sciences Luxembourg has become an official prize – awarded to the young winners of the largest Chinese competition (CASTIC) as well as the one organized by the European Commission (EUCYS) – in 2018, a similar agreement has been concluded this year between the representatives of the FJSL and

those of the world's largest competition, the Intel ISEF.

This contributes to the many successes that Luxembourg can count among its achievements in 2019!



EXTENSION OF THE FJSL NETWORK

The Fondation Jeunes Scientifiques Luxembourg also aims to promote exchanges between the world of research and civil society, between our young scientists and companies both at a local and an international level, in order to create opportunities for former and current participants.

This objective has given rise to new agreements:

ESTABLISHMENT OF A PARTNERSHIP BETWEEN THE JCI (JUNIOR CHAMBER INTERNATIONAL) AND THE FJSL

This year, the FJSL entered into an agreement with the JCI to provide an opportunity to continue working on specific projects that respond to the innovation market. As a result, we were excited to send Alex Muller, Valentin Ringlet and Maverick Schmit (with their project for a 3D printer that prints concrete for the purpose of printing entire buildings) to the Creative Young Entrepreneur Luxembourg (CYEL) competition, which is an annual competition for young entrepreneurs and their projects within innovation.

Prizes offered to the 3 finalists can include: air tickets, financial allowances, national visibility or free publicity via media partners. Because of the global dimension of the JCI organization (of which CYEL is the major event), the finalists will be able to be put in contact with members of the JCI Association (more than 200,000 members worldwide) in the countries of their choice. The winner will be offered up to three airline tickets to the destinations of his or her choice and, upon arrival, professional contacts that will help the laureate to develop a project internationally.

This agreement therefore allows our young scientists to be directly connected to the innovation market and to have access to a large number of professionals and sponsors.

INTEGRATION OF THE "ASTEROID DAY 2019" PROGRAMME LUXEMBOURG

The Asteroid Day is a dynamic outreach and education program designed to inspire the world about asteroids - their role in shaping our universe, how we can use their resources, how asteroids can pave the way for future exploration, and finally, how we can protect our planet from asteroid impacts.

Asteroid Day is held annually on June 30th - marking the anniversary of the impact of Tunguska in 1908 - and has made great strides in raising global awareness of asteroids. The idea is to share information and raise awareness of the science, opportunities and risks associated with asteroids.

As part of this event, we were able to involve a young team, composed of 2019 laureates Yannis Demoutiez, Luis Christophe and Noah Stevens, who presented their project "Analysis of the effect local climate parameters have on the detected cosmic muon flux with the AMD5 detector" in different schools and had the opportunity to attend high-level conferences held by experts and companies in the field (Patrick Michaely, Patrick Helminger, Guillaume Trap, Matt Dawson, Luxspace etc.), as well as by astronaut Dumitru Prunariu.

These experiences offered a tangible notion of the professions that revolve around astronomy, with a strong success in raising awareness among the school public.



"JONK ENTREPRENEUREN"

In addition, the Foundation continues seeking to join forces with the Jonk Entrepreneuren in order to facilitate its mission to create a bridge between entrepreneurial know-how and the ideas and projects of young scientists.

OTHER...

The Foundation continues to plan other regular events, bringing together alumni from the national contest as well as current participants.

RETENTION AND DEVELOPMENT OF SPONSORS AND PARTNERS

This year, our team's efforts came to fruition through the successful execution of our missions.

- The Ministry of National Education (MENJE) increased its agreement with the Foundation, allowing the creation of the new position of communications officer.
- The Mobisciences programme was renewed by the European Commission, allowing five symmetrical exchange agreements between Luxembourg, Belgium, France, Morocco and Spain.
- A new prize was added in 2019: The Gernsback Prize, generously sponsored by Mr Ralph Letsch, enabled the financing of the "MILSET - Expo-Sciences International (ESI)" activity in Abu-Dhabi in September of 2019.

- We were able to acquire two new sponsors in 2019, who financially supported the 48th edition of the national Jonk Fuerscher contest, namely EducDesign and the Lëtzebuerger Studenten zu Zürech.

In addition, we are currently discussing possible new agreements with other companies such as Goodyear, Farvest, a communication and marketing agency, and the design office Simon-Christiansen & Associates.

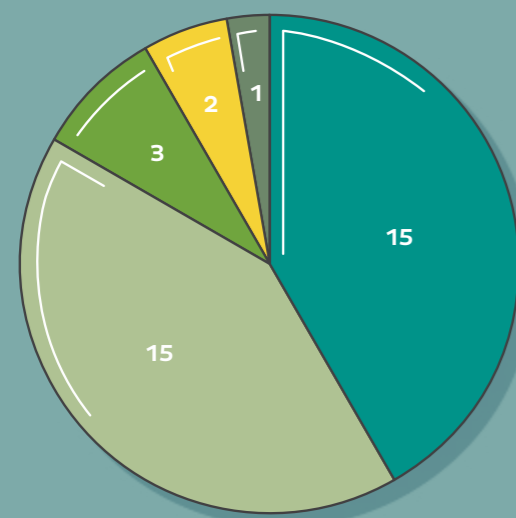
COMMUNICATION STRATEGY

Thanks to the support of the MENJE, the foundation was able to create the position of communications officer, effective since November 2019, to further increase its visibility among its various target audiences.

The creation of this new position allows the Foundation to develop its graphic charter, which was established in 2018. The objective is also to strengthen ties with

the press and television/radio media to increase awareness of the Foundation's activities among its target audiences. With this new strategy, we would like our young scientists to be the focus of our communication, and define the Foundation and our work through their identity, the content of their projects, the awards they have won and their participation in international competitions and activities.

HOW DID YOU FIND OUT ABOUT THE NATIONAL CONTEST?



- Presentation in school
- Internet (Social Media, Homepage)
- Teachers / School Staff
- Friends
- Other Young Scientists
- Other

The survey clearly shows that communication via digital and social networks has had no impact on young people, which is why it becomes important to develop our communication strategies towards this medium.

As a result, the FJSL has already considerably increased its presence on social networks, regularly posting relevant content on Facebook, Instagram, Twitter etc. A number of articles were published in the press to promote the Foundation's activities, such as the annual conference held at the Cercle Munster on 29th November 2019 (see press review below).

In its communication strategy, the foundation stresses the importance of communicating in the four working languages of Luxembourg in order to disseminate information as effectively as possible. Therefore, the site is currently available in French, English and Luxembourgish.

TRAINING TO PREPARE THE PRESENTATION OF A SCIENTIFIC PROJECT

The Foundation offered two training sessions for young people, on 5th and 6th March 2019, led by Cordula Schnuer (journalist from the Luxembourg Times) and Serge Quazzotti (Director of the IPIL).

These two training sessions on how to prepare a scientific project were a great success, which shows the importance of an information platform for young scientists. At the same time, the interest in working on projects at an ever-higher level continues to grow.

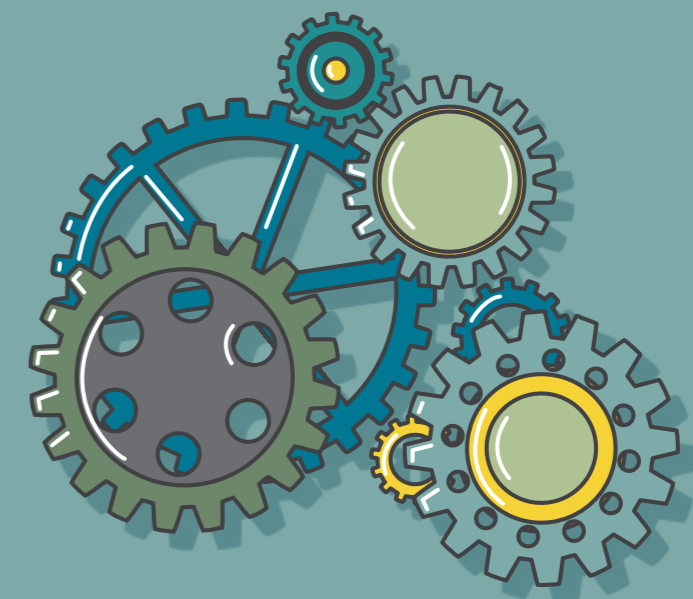
With this in mind, the Foundation's next objective is to collaborate with other institutions in order to provide them with further preparations.

The Foundation has entered into discussions with the Science Club / "Fuerscher Akademie" of the National Museum of Natural History (MNH) and plans to establish a bilateral exchange. On the one hand, the Foundation will have

the opportunity to reach more young people through a new outlet and encourage them to participate in its activities. On the other hand, our prospective young scientists will benefit from a specific training as described below:

- Scientific Research
- How to create a scientific poster presentation
- How to design a scientific PowerPoint presentation
- From the idea to the scientific Palaeontology publication.

The Foundation is reviewing different possibilities of collaborating with the Department of Vocational Training (SFP) of the Ministry of National Education (MENJE), with the prospect of involving Jonk Fuerscher in its offered training courses.



EXPANSION OF ACTIVITIES

The Foundation is in full expansion and yet faces its own limitations. In addition to the challenge of expanding the training offer, the FJSL receives a very large number of applications for the Expo-Sciences Luxembourg. Unfortunately, we have to refuse international delegations due to a lack of resources.

The recruitment of volunteers has become crucial to cope with the evolution of this constantly growing activity.

The search for volunteers requires a fairly demanding recruitment plan. In fact, for an ideal reception and handling of internationals, we have to look for quite specific profiles, namely volunteers who are:

- experienced in youth supervision;
- experienced in event organisation (coordination, logistics of all types);
- able to speak one of the languages known to our guests;
- available a few months before and after our events.



These criteria are part of an extensive and full-fledged recruitment process that we are currently not able to carry out thoroughly. So far, the foundation has had to involve its own board members in volunteer missions, who would ideally have to be duplicated in order to manage the many missions. This is the reason why the Foundation is reaching its own limits in the face of the increase in registrations in the Expo-Sciences Luxembourg.

VOLUNTEERS 2019 EDITION

As the Expo-Sciences Luxembourg is an essential platform in our mission to promote science, we need to increase the recruitment of volunteers by strengthening our structure and acquiring additional funding to expand our capacity of receiving participants.

The Expo-Sciences is booming and so is the national Jonk Fuerscher contest. Indeed, the overall participation figures are constantly increasing. Looking at this positive, growing trend, the FJSL is concerned with perpetuating its ethic of rewarding each participant.

As a matter of fact, each experience with an international continuity is an essential lever for a prospective scientist in his or her process of fulfilment through intercultural and scientific means.

- With this objective, the Foundation has entered into contact with Jugend forscht, the sister association in Germany, in order to establish a symmetrical exchange agreement with the possible opportunity for our young participants to exchange with Jugend forscht alumni during its PerspektivForum.

- The FJSL is pursuing a partnership with the Euro Space Center, which could offer the possibility to three young laureates of our national contest to take part in a space-themed internship.
- The prestigious organisation of the International Swiss Talent Forum (ISTF) offered us the possibility to add its annual forum to our prize list.
- In addition, our application for the Mobisciences 2020 programme was once again selected at the end of 2019, allowing symmetrical exchanges with four partner countries.

The organisations above cover a very wide range of approaches and practices depending on their philosophy, specific field and individual concept. In this diversity, we are constantly seeking to consolidate the essential platform for Jonk Fuerscher which is our mainspring.

CONTACT LIST

EXPO-SCIENCES

<p>MR MAHER KALAJI In charge of American, Egyptian and Indian teams</p> <p> </p>	<p>MRS NATALIA SLIOUTOVA In charge of Irish, Dutch, Hungarian and Austrian teams</p> <p> </p>
<p>MRS CHRISTELLE BAHLOWANE In charge of Turkish and Bulgarian teams</p> <p> </p>	<p>MRS SOUSANA EANG In charge of Moroccan and South African teams</p> <p> </p>
<p>MR EMMANUEL SERVAIS In charge of Belgian and French teams</p> <p> </p>	<p>MRS ANA PEREIRA In charge of Spanish and Kyrgyzstani teams</p> <p> </p>
<p>MRS OLGA KOX In charge of Russian, Tunisian and Slovenia teams</p> <p> </p>	

ACKNOWLEDGEMENTS

Since 1971, the Fondation Jeunes Scientifiques Luxembourg and its sponsors and partners have been committed to supporting adolescents who wish to develop their creativity by carrying out and sharing scientific research projects. This way, the Foundation hopes to contribute to the development of new generations of scientists essential to the country's evolution, as the training of researchers is a crucial factor for a sustainable future.

In view of all that has been accomplished so far – and considering all the possibilities that lie in the future – we, the members of

the Foundation, kindly thank our partners, sponsors, and volunteers for the moral and financial support they provide us on a daily basis.

In addition, we would like to express our deep gratitude to the Luxembourg National Research Fund (FNR) not only for its loyal moral and financial support, but especially for awarding us the 2019 FNR-award for "Outstanding Promotion of Science to the Public". Accepting this award was a tremendous honour and a great source of motivation for our future activities.

OUR SPONSORS

PUBLIC FUNDING



PRIVATE SPONSORS



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↓ LE QUOTIDIEN | 05.02.2019
Une imprimante 3D pour un prix en béton

Une imprimante 3D pour un prix en béton

LUXEMBOURG/TAIPEI Trois lauréats luxembourgeois sont arrivés à la deuxième place d'un concours international grâce à leur imprimante 3D qui module en béton.

Le Quotidien (Luxembourg) 5 févr. 2019



Les lauréats luxembourgeois ont fait sensation à Taïwan.

Du 24 janvier à samedi dernier s'est tenue, à Taipei (Taïwan), la 17e édition du concours international TISF (Taiwan International Science Fair). Le Luxembourg était pour la toute première fois l'un des 23 pays représentés grâce à la Fondation Jeunes Scientifiques Luxembourg (FJSL) et à son sponsor, l'entreprise Paul Wurth.

Alex Muller, Maverick Schmit et Valentin Ringlet avaient précédemment participé au concours national Jonk Fuerscher organisé par la Fondation en mars dernier. Ils s'étaient qualifiés pour le concours TISF avec leur projet «A

Modular Construction 3D Printers». Il s'agit d'une imprimante 3D particulière, puisqu'elle permet d'imprimer des objets en béton. Elle a été conçue dans le but de révolutionner la branche de la construction en imprimant des édifices entiers en béton.

Après avoir défendu leurs travaux, ces trois jeunes ont convaincu le jury taïwanais en remportant le deuxième prix en ingénierie.

Cette jeune équipe n'en est pas à son coup d'essai puisqu'elle avait participé au concours national Jonk Fuerscher en 2017 et s'était

qualifiée pour le concours brésilien Mostratex où le projet avait fait forte impression et avait été récompensé d'une mention honorable «pour projet exceptionnel» (Outstanding Project).

Les lauréats ont été accueillis par Tania Berchem (directrice exécutive du Luxembourg Trade and Investment Office de Taipei) qui a également décidé de soutenir la délégation luxembourgeoise par sa présence sur leur stand, en compagnie de René Stoltz, directeur général Asie de Paul Wurth International.

La Fondation Jeunes Scientifiques continue activement d'agrandir ses partenariats à l'échelle internationale et un nouvel accord a été conclu entre les représentants du TISF et la FJSL. À partir de 2020, l'Expo-Sciences Luxembourg figurera parmi les prix officiels remis à un jeune scientifique taïwanais.

La Taiwan International Science Fair (TISF) est un concours de recherche scientifique destiné aux jeunes. Cette organisation a pour mission d'identifier et de former de jeunes scientifiques talentueux. Elle rassemble environ 250 finalistes nationaux et 40 étudiants étrangers provenant de 20 pays différents du monde entier.

| www.fjsl.lu

↓ ESSENTIEL | 22.03.2019
Pour expérimenter les sciences

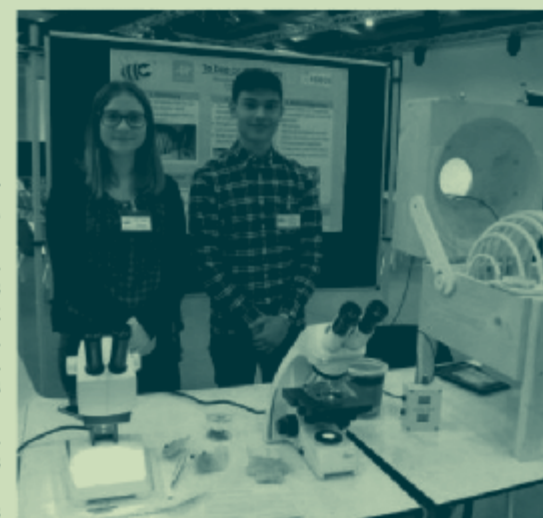
Pour expérimenter les sciences

LUXEMBOURG Dimanche, au campus Geesseknäppchen, les chercheurs en herbe vont présenter leurs innovations.

Un robot humanoïde, contrôlable à distance, pour épauler les pompiers dans des endroits dangereux. Une imprimante 3D pour le béton qui doit permettre d'imprimer des édifices entiers. Ce sont deux des projets remarquables qui se sont démarqués au concours national jeunes scientifiques l'an dernier.

Cette année, 62 jeunes ont soumis 31 projets. Le public les découvrira dimanche au Geesseknäppchen en même temps que les projets de lauréats internationaux présentés lors de l'Expo-Sciences Luxembourg.

Les jeunes participants sont âgés de 11 à 21 ans. Le concours attire les filles et les



Le public découvrira les projets de jeunes locaux et internationaux.

garçons à parts relativement égales. Ils ont été sensibilisés lors de présentations scolaires. Et ils développent leurs pro-

jets, qu'ils sont entièrement libres de choisir, de manière extrascolaire. Ils présenteront des projets

en biologie, chimie, ingénierie, sciences de l'informatique, mathématiques, physique, sciences sociales...

«Notre mission est de promouvoir les sciences auprès des jeunes. Souvent, ils reviennent d'année en année et leurs projets se renforcent, constate Sousana Bang, directrice de la Fondation jeunes scientifiques Luxembourg (FJSL), organisatrice du concours.

«Nous inscrivons nos lauréats dans des concours internationaux. Mais nous offrons aussi aux participants une plateforme de partage au niveau national et international avec d'autres jeunes. Au fur et à mesure, leurs réflexions et leur professionnalisme deviennent de plus en plus poussés».

Concours national et Expo-Sciences Dimanche, dès 14 h, au campus Geesseknäppchen. Remise des prix à 16 h.



Sauerstoff auf dem Mars

journal.lu - 24.03.2019



2 Fotos

Aus 14 Ländern waren Teilnehmer angereist. Fotos: Editpress/ Fabrizio Pizzolante

LUXEMBURG
CORDELIA CHATON

Zum 48. Wettbewerb „Jonk Fuerscher“ kamen Teilnehmer aus aller Welt

Lina Meknassi hat eines der großen Probleme von Astronauten erkannt: Sauerstoff fehlt. Also hat die junge Marokkanerin aus Fez kurzerhand ein Treibhaus für den Planeten Mars entworfen.

Jim Welter und Noah Edert vom Lycée Redingen haben sich mit prähistorischer Pharmazie beschäftigt, während Avanti Sharma, Ieva Stalaukaitė und Madera Thein eine Bademütze entworfen haben, die vibriert, wenn sich der Kopf beim Rückenschwimmen zu sehr dem Beckenrand nähert und ein Stoß droht. Einen ganz anderen Einfall hatten Jugendliche vom „Lycée Michel Lucius“, die heimische Honigsorten auf Glyphosat-Rückstände untersuchten. Und Mikhailov Evgeny aus Russland will mit dem „Sober Driver“ Trunkenbolde am Autofahren hindern. An Ideen mangelte es also nicht beim 48. Wettbewerb „Jonk Fuerscher“ und der damit verbundenen Ausstellung „Expo-Sciences Luxembourg“ im „Forum Geesseknäppchen“.

Während der Wettbewerb für Jugendliche zwischen elf und 21 Jahren seit 1971 stattfindet, gab es die Expo-Science in diesem Jahr in der zehnten Auflage. Die Jugendlichen können allein oder in Gruppen von bis zu drei Teilnehmern ein Projekt einreichen, über das eine unabhängige Jury entscheidet. Gewonnen haben die Teilnehmer auf jeden Fall: Die ausrichtende „Fondation Jonk Fuerscher“ engagiert sich unter ihrem Präsident Carlo Hansen, sie auch weiter zu fördern. Mittlerweile ist die Veranstaltung so populär, dass es sich sogar Premier Xavier Bettel nicht nehmen ließ, am Sonntag zu kommen. In einem vollen Saal mit rund 200 Teilnehmern warteten alle gespannt auf die Bekanntgabe der Sieger.

Teilgenommen hatten in diesem Jahr neben zahlreichen Eingeschriebenen aus Luxemburg auch junge Menschen aus 14 Ländern; Russland, Belgien, Spanien, Marokko, Indien, der Slowakei, Frankreich, Österreich, Bulgarien, Kirgistan, den Niederlanden, Südafrika, der Türkei und den USA. 35 ihrer Ideen wurden auf der Expo-Sciences vorgestellt. Gleichzeitig eröffnete sich die Möglichkeit, an anderen internationalen Wettbewerben teilzunehmen.

Die Zahl der Teilnehmer in diesem Jahr lag mit 62 höher als 2018, als 55 am Wettbewerb teilgenommen hatten. Auch die Zahl der Projekte lag mit 34 gegenüber 31 höher als im Vorjahr. Die Anzahl der teilnehmenden Mädchen war mit 30 fast genau so hoch wie die der Jungen, von denen 32 mitgemacht hatten.

Darüber zeigte sich Marc Schiltz, Generalsekretär des nationalen Forschungsfonds FNR, in seiner Ansprache sehr erfreut. Die Projekte behandelten Themen aus den Bereichen Chemie, Biologie, Sozialwissenschaften, Technologie, Ingenieurwissenschaften, Physik und Mathematik. ●



DES JEUNES QUI RÊVENT DE SCIENCE

LUXEMBOURG Soixante-deux jeunes du pays ont participé hier à la 48^e édition du concours national Jonk Fuerscher. Toutes les sciences étaient représentées, avec des projets souvent tournés vers l'environnement.

Le Quotidien (Luxembourg) 25 Mar 2019 De notre journaliste Audrey Llibez



Le concours a vu la participation de 62 jeunes Luxembourgeois, contre 66 en 2018. Jonk Fuerscher semble gagner en intérêt auprès des élèves.

Dès 11 ans, les jeunes passionnés de science pouvaient s'inscrire à ce concours et ainsi partager les résultats de leur recherche.

Trente-deux projets étaient présentés cette année au Jonk Fuerscher avec 62 participants. La 48^e édition de ce concours national avait lieu hier au campus Geesseknäppchen.

Giustine von Kerckhove n'a que 11 ans, mais cette élève de l'école européenne rêve déjà de sauver la planète grâce à la cyanobactérie qui selon elle pourrait empêcher le réchauffement climatique. La jeune fille est seule à mener ce projet : «J'aime bien être utile. J'ai connu cette bactérie en faisant des recherches sur la photosynthèse.»

Le climat, un sujet qui décidément inspire les jeunes participants qui présentaient leurs projets au grand public hier après-midi. Yannis De-

moutiez (17 ans), Noah Stevens (15 ans) et Christophe Luis (15 ans) sont les seuls au Luxembourg à détenir un détecteur de flux de muons. Vous ne savez pas ce que c'est? Nous non plus, mais heureusement ces élèves du lycée Erpeldrade de Merach maîtrisent parfaitement le sujet : «Les rayons cosmiques (NDLR : provenant notamment du soleil mais aussi de la galaxie) sont un flux formé de noyaux atomiques et d'autres particules. En entrant en collision avec l'atmosphère terrestre, les protons qui le constituent interagissent avec les noyaux de l'atmosphère et forment une gerbe de particules. La majorité se désintègre tout de suite», d'autres deviennent des muons.

Une crème solaire qui ne pollue pas

Les jeunes amateurs passionnés d'astrophysique comparent les paramètres climatiques et ce flux. Ils

sont heureux de partager leurs résultats avec les autres, grâce au concours. «On est aussi contents de voir ce qui existe au niveau des sciences au Luxembourg.»

Un peu plus loin, Nadine Haas et Marina Rodrigues, toutes les deux âgées de 16 ans et scolarisées au lycée Hubert-Clément d'Esch-sur-Alzette, ont opté pour la création d'une crème solaire qui ne pollue pas. Huile de coco, beurre de karité, le résultat sent bon sans produit chimique ni parfum. Il s'agit de l'oxyde de zinc et du dioxyde de titane, qui, à l'inverse des produits du commerce, n'est pas sous forme de nanoparticules et donc ne pollue pas. Le revers de la médaille c'est qu'il laisse encore une trace blanche, c'est d'ailleurs la raison pour laquelle les industriels utilisent les nanoparticules qui sont également soupçonnées d'être cancérigènes. «Dès que nous avons décidé de participer au concours, nous

voulions voir s'il était possible de faire une crème qui ne soit pas nocive pour l'environnement», racontent les jeunes filles, dont l'une est passionnée de mathématiques et l'autre de biologie.

Les sciences sociales sont également les bienvenues, quelques projets les représentent, dont celui de Mariman Yskuhova, 15 ans. Cette jeune Russe scolarisée au lycée Aline-Magrisch est au Luxembourg depuis deux ans. D'ici, elle a interrogé via internet une centaine d'adolescents en Russie nés sous la présidence de Poutine. Il en ressort notamment que «51% d'entre eux veulent que Poutine reste au pouvoir, mais paradoxalement 52 % veulent quitter la Russie», explique-t-elle.

Carlo Hansen, le président de la Fondation Jeunes Scientifiques Luxembourg, à l'origine de l'initiative, a le sourire. Cette 48^e édition se déroule très bien : «Je sens une progression, il y a de plus en plus d'enthousiasmes», confie-t-il. Et cet intérêt touche aussi bien les filles que les garçons, puisque la part se fait de façon spontanée, 30 filles et 32 garçons.

Trente-cinq jeunes de 16 pays différents ont également exposé leurs travaux.



Les jeunes scientifiques ont de l'idée

LUXEMBOURG - De nombreux jeunes de 11 à 21 ans ont présenté leurs projets dans le cadre d'Expo-Sciences. Le public les a découverts dimanche, au Forum Geesseknäppchen.



Photo: L'essentiel

«Nous avons travaillé sur un bonnet de bain avec capteur qui vibre quand vous nagez sur le dos et que vous approchez du mur de la piscine car le risque de blessure est réel», détaillaient ce dimanche après-midi, au Forum Geesseknäppchen Avanti et Madara, 12 ans, et Ieva, 11 ans, de l'École européenne Kirchberg.

Les 62 jeunes du Luxembourg âgés de 11 à 21 ans du Luxembourg présentaient ainsi leurs projets, à côté de ceux venus de l'étranger, lors du Concours national jeunes scientifiques et de l'Expo-Sciences. Sur les stands, le grand public a pu voir des projets très divers allant des drones à l'impact de champignons sur les bactéries.

(Séverine Goffin/L'essentiel)



Jonk Fuerscher : des scientifiques en herbe très prometteurs

LUXEMBOURG Dimanche, les jeunes du pays et d'autres venus du monde entier ont présenté leurs travaux au public. On connaît désormais les gagnants du concours national Jonk Fuerscher.

Le Quotidien (Luxembourg) | 26 Mar 2019

Après avoir présenté leurs travaux au grand public, dimanche, les jeunes participants du concours national de science Jonk Fuerscher ont assisté à la cérémonie de remise des prix en présence du Premier ministre, Xavier Bettel.

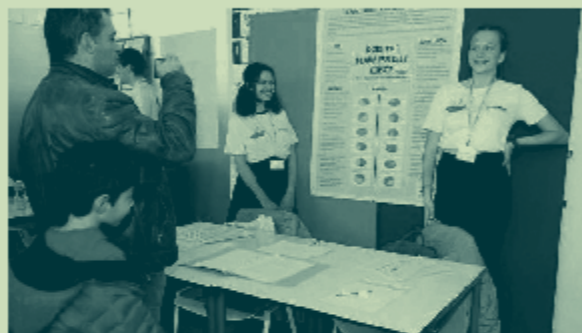
Cette année, la Fondation Jeunes Scientifiques Luxembourg (FJSL) a accueilli 61 participants répartis sur 32 projets innovants dans des domaines très variés tels que chimie, biologie, physique, science informatique, ingénierie et mathématique.

Les Jonk Fuerscher de 11 à 21 ans se sont vus récompensés par de prestigieux prix attribués en fonction de leur âge et de la qualité de leur travail. Un nouveau prix est venu s'ajouter : il s'agit de la possibilité de participer à l'Expo-Sciences Milset, à Abou Dhabi.

Les 10 projets qui ont été distingués par le jury pour les plus grands concours et programmes internationaux sont les suivants :

- Prix LIYSF (London International Young Science Forum), soutenu par la Fondation Alphonse-Weidner : «Immunogenic nucleic polypeptide complex for influenza virus neutralisation», d'Emily Cordier (17 ans), Sylvie-Anne Soares Pereira (16 ans) et Jean-Marc Furlano (17 ans), du Lycée Atert, à Redange.

- Prix Intel (ISEF (International



Avant la remise des prix, les jeunes scientifiques ont présenté leurs travaux au grand public.

Science and Engineering Fair, aux États-Unis, à Plouvent, soutenu par CapitalatWork : «8-bit CPU Visualizer», de Henri Ahola (15 ans) de l'European School I et «The Fractal Structure of the Bronchial Tree», de Marie Barberon (18 ans), de l'International School of Luxembourg.

- Prix Castic (China Adolescents' Science and Technology Innovation Contest, à Maizao), soutenu par la Fondation Nicolas et Jean-Paul Lannens : «Safe Trip Home from School», de Krzysztof Hyszik (13 ans), de l'European School of Luxembourg I.

- Prix Eucys (European Union Contest for Young Scientists, à Sofia, en Bulgarie), soutenu par la Commission européenne : «Le Trière Be(e) Glyphosate», de Dylan Ramurram (16 ans) d'Anais Marjorie Croquet (17 ans) et Marie Morgane Croquet

(15 ans), du Lycée Michel-Lucius, et «Putin's Russia and How Do Young People React to It», de Marina Yezubova, du Lycée Aline-Mayrisch.

- Prix de l'International Science Summer Institute du Weizmann Institute (Iscsi), soutenu par la Fondation Metanel : «The Wheelchair Accessibility Belt», de Camilla Hurst (18 ans), de l'université d'Oxford.

- Prix Taiwan International Science Fair (Taipei), soutenu par Paul Wurth S.A. : «Medical Uses of Polyporus Versicolor and Practical Application in Humanitarian Problem Areas», de Jim Welter (15 ans) et Noah Eder (16 ans), du Lycée Atert, à Redange.

- Prix Hugo-Gertebachs, qui offre la possibilité de participer à l'Expo-Sciences Milset (Abou Dhabi), sou-

tenu par Ralph Lersch : «Game Theory in Practices», de Lukas Kooy (18 ans) et Oscar Van Bommel (16 ans), du Lycée Michel-Lucius, et «Capscrew, a Bottle Opener for People with Reduced Wrist Dexterity», de Niccolò Hurst (20 ans), de l'Imperial College de Londres.

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ESSENCE | 27.03.2019

61 Teilnehmer mit 32 innovativen Projekten – auch in diesem Jahr konnte sich der Wettbewerb „Jonk Fuerscher“ der „Fondation Jeunes Scientifiques Luxembourg“ über regen Zuspruch freuen.

von Birgit Pfaus-Ravida

Kürzlich wurden die Laureaten in den Bereichen Chemie, Biologie, Physik, Informatik, Mathematik und Engineering ausgezeichnet. Einer davon ist Henri Ahola, ein wahrer Computerfan. Der 15-jährige Finne, der die Europaschule besucht, forscht und arbeitet schon seit Jahren rund um Robotik, Bits und Bytes. Das Programmieren hat er sich selbst beigebracht. Er ist zudem begeisterter Gast in Hackerspaces wie „Level2“ in Bonneweg und hat ständig neue Ideen. Mit seinem „8-bit CPU Visualisation tool“ zählte er in diesem Jahr zu den Preisträgern – wie auch schon 2018.

„Einfach, korrekt und präzise“

„Ich wollte sichtbar machen, wie ein Prozessor funktioniert. Dafür gibt es bisher nämlich keine praktischen und guten Visualisierungen. Es sollte einfach sein, aber dennoch korrekt und präzise“, sagt Henri. Denn, wenn man Menschen, die sich mit dem Innenleben von Computern nicht so gut auskennen, einen Prozessor erklären möchte, stößt man schnell an Grenzen. Henri selbst hat das schon erlebt, als er jüngeren Kindern bei Workshops sein Wissen vermitteln wollte. Was es bisher zu finden gab, war ihm entweder zu einfach oder zu kompliziert.

Seine Lösung: das „8-bit CPU Visualisation tool“, ein Werkzeug, das die komplexen Vorgänge innerhalb des Prozessors relativ einfach auf dem Computerbildschirm sichtbar macht. Wer Henris Tool aufruft, kann aus verschiedenen Ansichten wählen, die sich auf den Oberflächen eines dreidimensional dargestellten Würfels befinden.



Man sieht auf einer Oberfläche den Prozessor selbst, der aus einem Hauptspeicher mit 16 Bits besteht – um die Darstellung so unkompliziert wie möglich zu machen. Mit einer langsamen Geschwindigkeit von 0,5 Hertz – ein Hertz entspricht einem Puls pro Sekunde – wird gezeigt, wie sich die Bits bewegen.

Bei der Visualisierung bedient sich Henri der sogenannten **Von-Neumann-Architektur**. Dabei befinden sich sowohl das Programm als auch die Daten, mit denen der Prozessor arbeitet und die abgespeichert werden, in demselben Hauptspeicher. Die anderen Seiten des Würfels, der mit dem Tool dargestellt wird, beinhalten die Erklärung des Inhalts der Random-Access Memory (RAM), ferner die Erklärung der verschiedenen Komponenten innerhalb des Prozessors und eine Konfigurationsseite. Damit kann das System verlangsamt oder beschleunigt werden. Zudem können verschiedene Programme ausgewählt werden, die ausgeführt werden sollen – etwa ein Algorithmus, um Zahlen der sogenannten Fibonacci-Sequenz zu kalkulieren. Auch ein technisches Handbuch zum „8-bit CPU Visualisation tool“ hat Henri verfasst.



Das 8-bit CPU Visualisation tool
Screenshot: pixel

Messebesuch in Phoenix

Für sein Tool wurde Henri nun mit dem Intel-ISEF-Preis bei den „Jonk Fuerscher“ ausgezeichnet und darf zur im Mai stattfindenden International Science and Engineering Fair in Phoenix, USA. „Das ist die größte Messe ihrer Art“, sagt Henris Mutter Anu Ahola. Sie sei stolz auf ihren Jungen. „Er hat so viele Ideen und Projekte gleichzeitig und ist kaum zu stoppen.“ Derzeit macht Henri unter vielem anderen noch beim „Capture The Flag“-Wettbewerb mit, einer Cyber-Security-Challenge mit mehreren Levels, die man jederzeit am Computer spielen kann; demnächst ist er zusammen mit einem Team beim luxemburgischen Robotik-Wettbewerb dabei, und er studiert nebenher an der Uni Helsinki, derzeit in einem Cyber-Security-Base-Kursus.

„Wir achten darauf, dass Henri genug schläft. Auf keinen Fall pushen wir ihn zu den Leistungen – das kommt alles von ihm selbst.“ Und so ist die Familie Ahola ständig zu Gast auf Events, Messen und Wettbewerben rund ums Programmieren – auf der ganzen Welt. Denn auch die Tochter ist begeisterte Programmiererin. Etwa bei der Programmierolympiade in Russland. „Das war so cool. Jugendliche aus der ganzen Welt waren da, und ich hatte mit meinen beiden finnischen Teamkollegen viel Spaß“, erinnert sich Henri. Man merkt: **Freude und echtes Interesse sind der Schlüssel zu Erfolgen bei jungen Wissenschaftlern.**



Luxemburger Forschertalent gewinnt Gold

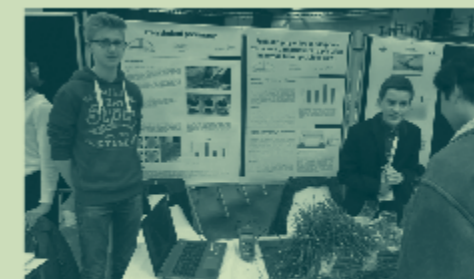
Der Natur auf der Spur

Freude und Interesse ist auch bei den „Jonk Fuerscher“-Preisträgern Noah Edert und Jim Welter zu finden. Als 1991 der über 5 000 Jahre alte Ötzi in den Alpen gefunden wurde, entdeckten

Forscher bei den Habseligkeiten des mumifizierten Menschen auch einen getrockneten Pilz: ein Stück Birkenbaumpilz. Noah Edert aus Grevenknapp hat sich mit seinem Klassenkameraden Jim Welter aus Lannan Gedanken darüber gemacht, warum Ötzi diesen Pilz dabei gehabt haben könnte.



Als Heilmittel? Zur Wundversorgung? „Da war uns klar, dass wir Pilze auf Bakterien testen wollten. Ob er etwa das Wachstum von schädlichen Bakterien hemmen kann“, sagt Noah. Die beiden Schüler des Attert-Lycée in Redingen, die von ihrem Biologielehrer Mirko Moreno unterstützt werden, haben nun eine Kiste entwickelt, mit der auch in entlegenen Gegenden der Erde medizinische Pilze gezüchtet werden können: die „Polaris-Box“.



Die beiden Schüler Noah Edert und Jim Welter präsentieren ihre Polaris-Box. © Mirko Moreno

Ein anderes Forschungsprojekt der zwei Jungs ging der „Polaris-Box“ voraus: die **„Apotheke der Steinzeit – die Wirkung von Heilpilzen auf Escherichia Coli“**. „Wir wollten zunächst mal untersuchen, welche Pilze wie auf Bakterien wirken“, erklärt Jim Welter. „Dazu haben wir den Birkenporling, den flachen Lackporling und die Schmetterlings-Tramete klein geschnitten und die Wirkstoffe extrahiert. Auf einem Nährboden haben wir dann Kolibakterien hinzugegeben und das Ganze 24 Stunden bei 37 Grad sich entwickeln lassen – bis man die Bakterienkolonien mit bloßem Auge sehen konnte.“ Die einfache Schlussfolgerung: Je mehr Kolonien man sehen konnte, desto unwirksamer waren die Extrakte der Pilze gegen die Kolibakterien.

Die Schüler machten vier Tests, drei mit Pilzen und einen mit Bakterien und reinem Wasser als Kontrollgruppe: Der Birkenporling und der flache Lackporling hatten keine Auswirkung auf das Wachstum der Bakterien.

Die Holzarten bewohnende Schmetterlings-Tramete, die mit dem Pilz verwandt ist, der bei Ötzi gefunden wurde, förderte es dagegen sogar. **In ihrem aktuellen Projekt „Medical uses of polyporus versicolor and practical application in humanitarian problem areas“** untersuchten die beiden Schüler ihre Ergebnisse nochmals, um zu überprüfen, dass das alles kein Zufall war. „Wir haben herausgefunden, dass die Tramete das Wachstum von lebensnotwendigen Bakterien fördern kann, die etwa die Darmflora stärken.

Und wir haben uns überlegt, wie wir diese Wirkung auch Menschen zugänglich machen können, die keine Medikamente kaufen können“, sagt Noah Edert. Die Lösung: eine Kiste zum Pilzezüchten. „Und zwar mit Materialien, die es überall gibt: Plastikkanister und Plastikflaschen, Sand, Wasser, Lehm und Reisig sowie Holzspäne, auf denen der Pilz wachsen kann, und eine Feuerstelle, um den Lehm zu brennen.“

Innerhalb der Kiste wird ein ideales Klima für das Wachstum der Pilze geschaffen. Das Reisig obendrauf verhindert, dass die Sonne zu stark auf den Lehm prallt, die Temperatur innen ist konstant zwischen 15 und 20 Grad, die Feuchtigkeit ideal. Im Prinzip müssen nur Holzstücke, die mit Myzelium der Schmetterling-Tramete „befallen“ sind, in die Gebiete geliefert werden.

Alle Preisträger und weitere Informationen zum Wettbewerb „Jonk Fuerscher“ unter www.fjst.lu

↓ JOURNAL | 13.04.2019
Dem All so nahe

Dem All so nahe



Fotos: FJSL, AF

KÖLN/LUXEMBURG Der junge Forscher Christophe Luis erhielt die Gelegenheit, unter anderem das Deutsche Zentrum für Luft- und Raumfahrt (DLR) zu besuchen. Dies war der Fall, weil er bei der 48. Auflage des nationalen Wettbewerbs „Jonk Fuerscher“ den DLR-Preis für sein Projekt „Analysis of the Blackett effect based on the detected cosmic muon flux with the AMD5 detector“ erhielt. Dieser Preis beinhaltet neben dem Besuch des Zentrums in Köln auch eine Visite des „European Astronaut Centre“ samt mehreren Workshops. LJ



↓ REVUE | 16.04.2019

Home » People » Junge Forscher

JUNGE FORSCHER

Seit 1971 schon organisiert die Fondation Jeunes Scientifiques Luxembourg den nationalen Wettbewerb „Jonk Fuerscher“ für Jugendliche zwischen 11 und 21 Jahren. Zugelassen sind dabei praktisch alle Wissensgebiete. Und auch dieses Jahr war es wiederum ein voller Erfolg, der von der Wissbegierde der jungen Generation zeugt. Unsere Bilder wurden während der Preisüberreichung aufgenommen.

Fotos: Thierry Martin





↓ ECHOSCIENCES OCCITANIE | 17.04.2019
Mobisciences 2019 - Luxembourg



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Mobisciences 2019 - Luxembourg

Publié par CIRASTI Exposciences en Occitanie, le 17 avril 2019 42



2^e édition de Mobisciences 2019, un projet porté par Sousana Eang, directrice de la Jonk Fuerscher Fondation du Luxembourg et organisateur du Concours National Jonk Fuerscher et de la 10^e Exposciences Luxembourg.

Cet événement a rassemblé 68 projets du Luxembourg ainsi que d'une 20aine de pays (incluant l'Afrique du Sud, l'Inde, le Kirghizistan, les Etats-Unis, et bien d'autres) et notamment le Maroc, l'Espagne, la Belgique et la France grâce à Mobisciences 2019 permettant à 4 jeunes et 1 accompagnateur d'être financé par le programme Erasmus +.

Pour la 2^e année consécutive, Mobisciences commence au Luxembourg avec un programme riche en échanges et en découverte : visite de la ville, du Science Center, du Muséum et soirée Culturelle. L'objectif de ce programme est de permettre à des jeunes de 13 à 25ans de présenter un projet scientifique et de participer à un échange international via l'inscription à un événement tel que L'Exposcience au Luxembourg.

Le CIRASTI Occitanie a pu envoyer des projets de médiation scientifique radiophonique portés par Camille Berjonneau, 21ans, Pierre Lemos, 21ans et Vincent Marin-Manens, 25ans, tous 3 services civiques (dont 2 à l'Université Fédérale de Toulouse) : **Cap sur les Labos, OSNIS Sonores et T'en parles**. Des projets permettant d'aller interviewer des scientifiques, des porteurs de projets en développement durable ou en initiatives sociales innovantes, ou encore d'interroger le public sur des objets scientifiques n'étant plus utilisés dans les labos afin de découvrir l'utilité qu'ils pouvaient avoir (objets appartenant au **PATrimoine Scientifique Technique Contemporain - PATSTEC**).

Des projets à retrouver bientôt en diffusion sur Campus FM, les infos seront à retrouver sur le site du CIRASTI Occitanie et sur celui de l'Université Fédérale.



Prochaine étape de Mobisciences 2019, du 18 au 22 avril au Printemps des Sciences de Fès-Mekhnes avec le projet Robotronik du Lycée Champollion de Figeac (46) ou nous retrouverons des espagnols et luxembourgeois !

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SCIENCE + ENVIRONMENT - FONDATION JEUNES SCIENTIFIQUES LUXEMBOURG

Mobisciences 2019 - Morocco

RTL | Update: 25.04.2019 18:10



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The 4th edition of the Printemps des Sciences Fez – Meknes took place from April 18th to 22nd 2019.

The 2019 edition welcomed national and international projects alike, including from Luxembourg, France and Spain thanks to the Erasmus+ Mobisciences 2019 program, which is being supported by the European Commission and carried by the Fondation Jeunes Scientifiques Luxembourg.

Some twenty scientific projects were presented by over a hundred participants who took part in the event. The projects put an emphasis on the scientific research of natural and social sciences as well as intercultural exchange, while a rich and varied programme supported the event.

Alexandre Baptista, Félix De Vleeschauwer, Zheng Zhu (Lycée Michel Lucius) and Ashiqui Islam (Lycée Arts et Métiers) were the four young scientists who represented Luxembourg with the following projects.

Zhentrifuge

A centrifuge is a device that is used to separate liquid mixtures, like blood, through kinetic energy and centrifugal force.

Alexandre, Félix and Zheng wanted to create a centrifuge that was cost-efficient and practical to use.

In fact, a common centrifuge could cost anywhere between €1,000 and €5,000, while the three young scientists managed to create a centrifuge for less than €100. Their research could be used to provide cost-efficient centrifuges to labs situated in less developed countries.

Wie sauber ist das Wasser?

In his project, Ashiqui pointed out an important and well-known problem: the lack of water.

A problem that is linked to an excessive use in our everyday lives (cleaning) and in the industry, but also to global warming, and has major consequences for humanity.

Well done to all involved.

Links

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1 Foto

Ishaana Rao (l.) und Alina Liedtke experimentierten an ihren beiden Test-Robotern. Foto: Privat

LUXEMBURG
DANIEL OLY

Roboter-Jungforscherinnen auf der Suche nach den Weltverbesserern

Die eigenen Grenzen ausloten, wissenschaftlich forschen, Neues lernen, Erlerntes anwenden - bei den Jungforschern („Jeunes Scientifiques“) und ihrem Wettbewerb „Jonk Fuerscher“ wurden auch in diesem Jahr reichlich innovative Projekte von engagierten und interessierten Schülern gefördert. Zwischen Forschungsprojekten zu der antibakteriellen Wirkung von Honig und einer Studie zu den Einflüssen der sozialen Netzwerke auf unser Schönheitsbild kamen insgesamt 32 Projekte von 61 Teilnehmern zusammen.

Mitgemacht haben auch Alina Liedtke und Ishaana Rao; die beiden Schülerinnen haben sich dabei ausgerechnet ein echtes Kernthema der Zukunft ausgesucht: „Wir haben uns für Robotik entschieden, weil wir hier einen eindeutigen Bedarf ausgemacht haben“, erklärt Liedtke. So könnten Roboter als kleine Helfer im Alltag dazu beitragen, hilfsbedürftige Menschen ein Stückchen unabhängiger zu machen. „Hinzu kommt, dass wir uns beide sowieso sehr stark für diese Technologien interessierten.“ Das bestätigt auch Rao: „Wir hatten schon immer ein großes Interesse an der Forschung und den Wissenschaften“, meint sie. Und außerdem sei es eine Chance, eine Vorbildfunktion einzunehmen: „Es gibt nicht besonders viele Mädchen in der Robotik“, bedauert Rao.

Hilfreiches Vorwissen

„Robots: Small ways they can effectively impact the world“ - unter diesem Titel machten sich die beiden Jungforscherinnen alsdann an die Arbeit, um mögliche Einsatzzwecke für die kleinen Helfer zu finden. „Wir haben uns an anderen Hilfsmitteln orientiert, wie den Löffeln für Parkinson-Erkrankte zum Beispiel“, sagt Rao. So sollten ihre Roboter etwa dabei helfen, Flaschen aufzuheben oder über Termine zu informieren. „Dazu waren reichlich Experimente nötig, aber auch das technische Grundwissen, um die Roboter zusammen zu bauen und zu programmieren“, sagt sie. Für Rao und Liedtke zum Glück kein Neuland: „Wir hatten schon ein Vorwissen beim Umgang mit Programmiersprachen wie ‚Python‘“, erklärt Liedtke. „Das hilft natürlich nur bis zu einem gewissen Punkt, ab dem wir dann trotzdem ins Trudeln gerieten“, meint sie. Aber die Forscherinnen wissen: Nur an den Herausforderungen kann man wirklich wachsen. „Wir haben dadurch sehr viel hinzugelernt“, erklärt sie.

So haben die Jungforscherinnen zwei unterschiedliche Roboter erworben, hinzu kam ein mechanischer Greifarm. „Mit diesen beiden Geräten haben wir dann untereinander verglichen, welcher Roboter sich für welche Aufgabe eignet“, meint Rao. So mussten die Maschinen mehrere Hindernisparcours überstehen, die das Material (und ihre Programmierung) auf Herz und Nieren prüften. Rückblickend sei es eine sehr gute Entscheidung gewesen, zwei Roboter zu haben, erklärt Liedtke zudem: „Das hat die Fehlersuche und den Lernprozess sehr beschleunigt.“ So habe der Roboter mit nur einem Antriebsrad etwa sehr starke Probleme mit leichten Anstiegen und Rampen gehabt. Beim Greifarm hingegen habe sich die Programmierung als harte Nuss herausgestellt. „Mittlerweile haben wir den Code aber im Griff“, erklärt sie. Gerade zu Anfang hätten sie sich schwergetan. „Unser Code war einfach zu komplex.“

Ihre Teilnahme am „Jonk Fuerscher“-Wettbewerb bedauern sie deshalb auch nicht. „Wir haben dabei sehr viel hinzulernen und uns mit anderen Forschern aus aller Welt - und damit auch mit smarten Köpfen im Bereich der Robotik - austauschen können“, sagt Rao. Zudem gab es reichlich Unterstützung, auch von den „Jeunes Scientifiques“ selbst, die allen teilnehmenden Jungforschern nicht nur mit Rat und Tat zur Seite standen, sondern auch konstruktiv Kritik übten, was den beiden Forscherinnen half, ihr Projekt zu verwirklichen: „Wir haben viel sachliches Feedback bekommen, das ganze Event war viel weniger beängstigend als wir zuerst befürchtet hatten“, meint sie weiter.

Gewonnen haben sie auch etwas: „Wir werden nach Toulouse zur ‚Expo Sciences‘ fahren können“, erklärt Rao. „Das wird uns eine weitere Chance bieten, unsere Forschung vorzustellen und außerdem unseren Horizont erweitern.“ Schließlich lebe die Wissenschaft davon, ständig mit Neuem konfrontiert zu werden und neue Ideen zu haben. Auch Liedtke beteuert: „Wir werden unser Forschungsprojekt auf jeden Fall weiterführen und hoffentlich auch im nächsten Jahr wieder beim Wettbewerb der Jungforscher mitmachen.“ Bis dahin wollen beide auch an weiteren Coding-Workshops teilnehmen, um ihre Programmierkenntnisse weiter auszubauen. „Wir sind zum Beispiel kommenden Monat zu einem Programmierwettbewerb für Roboter in Rosport angemeldet“, erklärt Liedtke.

Raos und Liedtkes starkes Interesse an Programmiersprachen und der Robotik hat aber auch einen leichten Beigeschmack: Die Mädchen sind in ihrem Fachgebiet eher eine Ausnahme. „Für gewöhnlich ist das eher eine Jungs-Domäne“, meint Rao. Mädchen würden schlicht nicht häufig genug für diese Forschungsgebiete begeistert. „Wir hatten Glück“, betont Rao deshalb. Motiviert wurden die beiden Schülerinnen durch ihre Lehrer. „Wir haben den nötigen Anstoß bekommen und wurden entsprechend gefördert“, meint sie. Deshalb wollen sie mit ihrer Forschung auch ein Beispiel setzen: „Roboter sind auch was für Mädels.“ ●



↓ **ESSENTIEL** | 03.05.2019
Les jeunes scientifiques ont représenté le Luxembourg

Les jeunes scientifiques ont représenté le Luxembourg

LUXEMBOURG/BRUXELLES Quatre chercheurs en herbe ont représenté les couleurs du Luxembourg de jeudi dernier à lundi, à l'Expo Sciences à Bruxelles, indique la Fondation jeunes scientifiques Luxembourg. Le projet présenté par Myriam Alexandra Bartolé, de l'École Sainte-Sophie, comparait les différences de caractéristiques biologiques entre une crique et un



G. à d.: Myriam, Marcus, Samuel et Augustin participaient à l'Expo Sciences à Bruxelles.

aquarium. Augustin Rendu, du Lycée Michel-Lucius, a lui combiné une approche scientifique et humaine pour trouver le repas parfait adapté à tous en étant rentable. Marcus Dackner et Samuel Weisz, de l'International School, ont développé un groupe électrogène utilisant des énergies renouvelables. En tout, à Bruxelles, 450 participants présentaient 118 projets.



↓ **RTL TODAY** | 22.05.2019
Jonk Fuerscher 2019 laureate Henri Ahola represented Luxembourg at Intel ISEF

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SCIENCE + ENVIRONMENT - YOUNG SCIENTISTS

Jonk Fuerscher 2019 laureate Henri Ahola represented Luxembourg at Intel ISEF

RTL | Update: 22.05.2019 16:04



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The Intel International Science and Engineering Fair (Intel ISEF), the largest pre-university scientific competition, took place from 12 to 18 May in Phoenix, Arizona.

The Fondation Jeunes Scientifiques Luxembourg (Young Scientists Luxembourg Foundation) works with sponsors to help teenagers develop creative projects in scientific research. Thanks to the sponsor Capitalatwork, Jonk Fuerscher 2019 laureate Henri Ahola was able to represent Luxembourg at Intel ISEF.

Intel ISEF brings together around 1,800 students from 80 different countries. The students have the opportunity to win prestigious prizes at the fair, with the total in prize money reaching \$4 million.

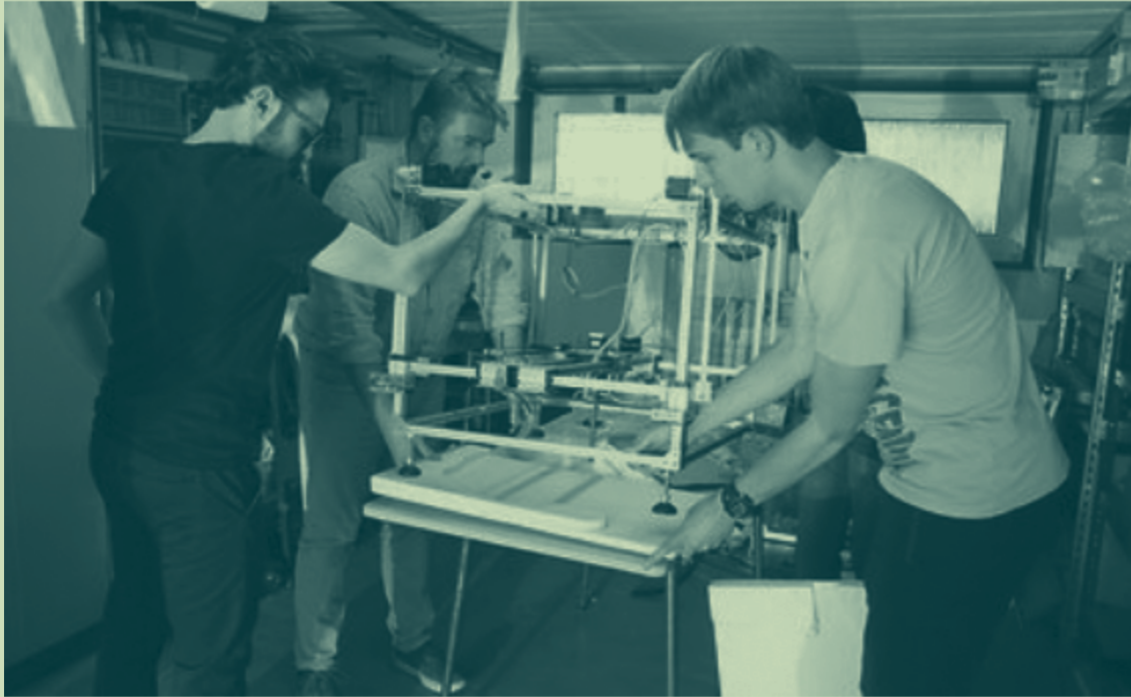
Ahola, a student at the European School I in Luxembourg presented his 8-bit CPU visualisation tool at the fair. The aim of Ahola's tool is to visualise and demonstrate how a computer processor works, simulating a simplified processor and explaining how data moves within a computer and its functioning.

At Intel ISEF, Ahola's project drew the attention of those working in the education sector, given its revolutionary ability to make such a complex computer processor easily comprehensible.

In addition to Ahola's success at Intel ISEF, the FJSL also signed an agreement with Intel ISEF. As per the agreement, one winner at Intel ISEF will have the opportunity to participate at Expo-Sciences Luxembourg as a special prize.

Luxemburger Wort

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von Birgit Pfau-Ravida

Ganze Häuser aus dem 3D-Drucker: Was heute noch unmöglich klingen mag, könnte vielleicht in ein paar Jahren Realität werden. Die Schüler **Alex Müller, Maverick Schmit und Valentin Ringlet** haben einen besonderen 3D-Drucker entwickelt, mit dem man theoretisch – und später vielleicht auch praktisch – ganze Häuser aus Beton herstellen kann: den „Modular Construction 3D Printer“.

Für diese Erfindung gewannen sie 2017 und 2018 beim Wettbewerb „Jonk Fuerscher“. Belohnung: je eine Reise zu Wettbewerben nach Brasilien und Irland. 2018 publizierten sie zudem einen wissenschaftlichen Artikel, den sie auf der weltweit ersten Konferenz zum Thema 3D-Drucken in Melbourne vortragen durften. Und bei der „**Taiwan International Science Fair 2019**“ in Taipeh räumten sie den zweiten Preis in der Kategorie Ingenieurwesen ab.

Günstig, schnell, flexibel

Am Anfang stand 2016 für die Schüler ein Optionskurs im **Lycée Aline Mayrisch** bei Philippe Kirsch, Lehrer für Mathematik, Physik und Chemie. Einzige Vorgabe für dort entstehende Projekte: Es sollen sogenannte **Arduinos** verwendet werden – das sind aus Soft- und Hardware bestehende Physical-Computing-Plattformen, also ganz rudimentäre und kleine Computer.

„Aber dann hatten wir die Idee, damit etwas zu bauen, das gleich mehrere Vorteile im Vergleich zu aktuellen

Lösungen hat. Im Bauwesen gibt es gerade in Luxemburg mehrere Probleme: Nicht nur teure Grundstückspreise, sondern auch teure Handwerker- und Materialkosten“, sagt der 20-jährige Abiturient Alex Müller aus Bettendorf.

Was, wenn man ganze Häuser oder Module günstig und schnell mit einem flexiblen 3D-Druckersystem herstellen könnte? **Mit lokalen Ressourcen und generell weniger Materialaufwand?** Und mit individuell angepasstem Design jenseits der heute üblichen „praktischen Schachteln“? Vielleicht könnte man diese Technologie sogar zu humanitären Zwecken in Krisengebieten einsetzen?

Diese Ideen begeisterten Alex und seine Mitschüler Maverick und Valentin, ebenfalls beide 20 Jahre alt. „Herr Kirsch war am Anfang nicht wirklich begeistert – er hat gefragt, ob es unbedingt was mit Beton sein soll oder ob wir nicht doch erst mal etwas mit Pappmaché ausprobieren wollen“, erinnert sich Alex Müller.

Lehrer Philippe Kirsch, 42 Jahre alt und Hobbytüftler mit Leib und Seele, ergänzt: „Ich habe zu den Jungs gesagt: Geh mir eine Woche Zeit, um darüber nachzudenken. Denn Aufwand und Kosten würden nicht niedrig sein – und wir hatten im Prinzip null Euro und nur zwei Wochenstunden zur Verfügung.“ Doch Philippe Kirsch kam zu dem Schluss, dass das Projekt dennoch realisierbar wäre.

Die drei Schüler legten mit Hilfe ihres Lehrers los. Es entstand erst ein Prototyp aus Holz, um die Mechanik zu testen, dann einer mit einer Rahmenkonstruktion aus Stahl, der aber zu schwer war, um anhand kleiner Elektromotoren bewegt zu werden, und schließlich der aktuelle und erfolgreiche aus Aluminium.

Alex kümmerte sich bei den Forschungen um den mechanischen Part, Valentin, der heute Informatik studiert, um die Programmierung und alles rund um die IT, und Maverick, der seit dem Abi Physik studiert, fand heraus, mit welcher Pumpe und welchem Extruder man welches Gemisch benutzen muss, um ein gutes Ergebnis zu erhalten und wirklich ein Gebäude drucken zu können.

„Zuerst haben wir ausprobiert, wie man den Beton spritzen muss – da musste auch Manas Backspritze probeweise herhalten“, erinnert sich Maverick lachend. Alex, der gerade sein Abi macht, probierte, welche Alternativen es zu den Gewindeschrauben gibt, mittels derer normalerweise der Druckkopf nach links und rechts sowie nach oben und unten bewegt wird. Denn die Schrauben sind anfällig für Schmutz – das wäre auf Baustellen ein KO-Kriterium.

„Im Endeffekt soll unser Drucker jeweils so groß aufgebaut werden, wie das Haus letztendlich ist. **Die Masse wird direkt auf den Boden gespritzt** – vom Fundament an“, erklärt Alex und zeigt die Druckerkonstruktion in der Garage seines Elternhauses. Der Prototyp mit sieben Motoren, der dort steht und schon zu Wettbewerben in verschiedene Länder gereist ist, zeigt zwei Möglichkeiten, die man statt Gewindeschrauben verwenden kann – einen Gummizahnriemen und eine Art Rolladengurt. „Denkbar sind aber auch Ketten wie bei Flaschenzügen“, ergänzt Lehrer Kirsch.



Philippe Kirsch und Valentin Ringlet (r.) bei der Arbeit.
Foto: Anouk Antony

Ein echtes Herzensprojekt

Dann machten sich die vier Gedanken darüber, wie man Bodenunebenheiten beim Aufstellen des Druckers ausgleichen kann. „So kann man wirklich auch bei unebenem Gelände direkt drucken und muss nicht den Boden aufbaggern – auch wieder eine Sache von weniger Aufwand“, erklärt Philippe Kirsch.

Wer die jungen Männer und ihren Lehrer bei der Arbeit mit dem dritten und neuesten computer-unterstützten Prototyp in der Garage hülfe und fachsimpeln sieht, merkt: Das hier ist ein Herzensprojekt. Kürzlich waren sie bei einer Gala der „Creative Young Entrepreneur Luxembourg“ eingeladen – und unter den zehn Finalisten. „Wir waren definitiv die Jüngsten dort“, sagt Alex Müller nicht ohne Stolz.

Und wie soll es weitergehen? „Denkbar wäre einerseits die kommerzielle Richtung, andererseits eine Kooperation mit der Forschung, etwa der Uni“, sagt Philippe Kirsch. Generell erfordert so ein Projekt einfach Leidenschaft – von den Schülern, aber auch von den Lehrern.

„Wir müssen uns was einfallen lassen, wenn wir junge Leute für Naturwissenschaften begeistern wollen. Das funktioniert nicht ohne die Bereitschaft, auch mal einige zusätzliche Stunden mit den Schülern zu arbeiten. Und es ist natürlich schön, wenn das denn auch wertgeschätzt wird – und so tolle Ergebnisse entstehen.“

Weitere Informationen über das Projekt unter: <http://mc3dp.info/#map://mc3dp.info/>



Sonderheft
15. Juni 2019
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Starker Jugendeinsatz

Engagement für das Wissen: Ein Blick hinter die Kulissen der „Fondation jeunes scientifiques“

LUXEMBURG
JULIE D'EL

Aminouche El Ghazal, eine 19-jährige Studentin an der Universität Luxemburg, ist die jüngste Teilnehmerin der „Fondation jeunes scientifiques“. Sie hat sich für die Teilnahme an der 15. Ausgabe der „Fondation jeunes scientifiques“ beworben und ist unter den zehn Finalisten ausgewählt worden. Sie ist die jüngste Teilnehmerin der „Fondation jeunes scientifiques“.

Die „Fondation jeunes scientifiques“ ist eine Initiative der „Fondation jeunes scientifiques“ in Luxemburg. Sie zielt darauf ab, junge Talente in den Naturwissenschaften zu fördern und ihnen die Möglichkeit zu geben, ihre Projekte zu präsentieren. Die Initiative ist ein wichtiger Bestandteil der „Fondation jeunes scientifiques“.

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„Eine herausragende Chance für junge Forscher, erste Erfahrung zu sammeln“

Interview mit Aminouche El Ghazal

Die Teilnahme an der „Fondation jeunes scientifiques“ ist eine herausragende Chance für junge Forscher, erste Erfahrung zu sammeln. Aminouche El Ghazal, eine 19-jährige Studentin an der Universität Luxemburg, ist die jüngste Teilnehmerin der „Fondation jeunes scientifiques“. Sie hat sich für die Teilnahme an der 15. Ausgabe der „Fondation jeunes scientifiques“ beworben und ist unter den zehn Finalisten ausgewählt worden. Sie ist die jüngste Teilnehmerin der „Fondation jeunes scientifiques“.

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Aminouche El Ghazal (19) und Nabila Mounir (18) freuen sich über die Anerkennung ihrer Projekte durch die „Fondation jeunes scientifiques“.



Die Vorbereitung der Projekte „Genetics in the field“ und „The impact of climate change on the environment“.

Die Vorbereitung der Projekte „Genetics in the field“ und „The impact of climate change on the environment“. Aminouche El Ghazal und Nabila Mounir haben sich für die Teilnahme an der „Fondation jeunes scientifiques“ beworben und sind unter den zehn Finalisten ausgewählt worden. Sie sind die jüngsten Teilnehmerinnen der „Fondation jeunes scientifiques“.

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SCIENCE + ENVIRONMENT - MOBISCIENCES SPAIN

Scientific procedure in natural and social sciences

RTL | Update: 03.07.2019 15:02



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The 28th International Congress of Young Researchers (ICIJA) took place between June 24th and June 28th 2019 in Zaragoza, Spain.

This edition welcomed national and international projects from Luxembourg, France, Spain and others thanks to the Erasmus+ Mobisciences 2019 program, which is supported by the European Commission and carried by the FJSL.

The projects put an emphasis on the scientific procedure in natural and social sciences and the intercultural exchange was supported by a rich and varied program and activities.

Mariana Nunes Dias, Nityapriya Hari Krishnan, Nor Aimi Binti Sefex Afenday and Nhu Khnah Lê (Lycée Michel Lucius) won their participation in the Congress during the last edition of the national Contest "Jonk Fuerscher" in Luxembourg.

The four young scientists got the opportunity to present their respective projects in front of other young researchers and the local press.

The projects undertaken were:

- "Les enjeux de la qualité de l'eau" is a project by Mariana Nunes Dias that analyses the importance of access to clean water in developing countries and how this can be made possible for a very low cost.

- "Investigating the Antibacterial Properties of Honey" by Nor Aimi Binti Sefex Afenday, Nhu Khnah Lê and Nityapriya Hari Krishnan is a project that shows the many health beneficial properties of honey on the example of E coli bacteria growth.

Links

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Sciences : un jeune résident luxembourgeois médaillé en Chine

Dans Luxembourg, Luxembourg-Ville Mis à jour le 30/07/19 12:06 | Publié le 30/07/19 12:02



Krzsimir Hyzyk (13 ans), élève à l'École européenne de Luxembourg, a remporté une médaille de bronze bien méritée. (photo FJSL)

Krzsimir Hyzyk (13 ans), élève à l'École européenne de Luxembourg, a remporté une médaille de bronze à la 34e édition du Castic (China Adolescents Science & Technology Innovation Contest) à Macao, en Chine, du 20 au 26 juillet.

Depuis 2012, la fondation Jeunes Scientifiques Luxembourg (FJSL) envoie chaque année un de ses lauréats du concours national «Jonk Fuerscher» au Castic, concours scientifique renommé en Asie.

Krzsimir Hyzyk, qui s'est vu recevoir ce prix par la FJSL, était le plus jeune à concourir à cette 34e édition du Castic avec son projet combinant la science informatique et la mobilité : «Safe Trip Home from School».

Sur la base des estimations du trafic basées sur ses trajets quotidiens, Krzsimir a pu établir l'installation d'un feu de circulation en vue d'améliorer la sécurité du piétonnier sur deux carrefours spécifiques. Ce projet, inspiré par sa vie quotidienne, a convaincu le jury du Castic et a remporté une médaille de bronze bien méritée.

De son côté, pour la deuxième année consécutive, la FJSL a décerné à un jeune lauréat chinois le prix Expo-Sciences Luxembourg.

↓ **RTL TODAY** | 30.07.2019
A Bronze Medal for the Grand Duchy

<https://today.rtl.lu/news/luxembourg/a/1383334.html>



LUXEMBOURG - CASTIC 2019

A bronze medal for the Grand Duchy!

RTL | Update: 30.07.2019 14:32



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Since 2012 the **Fondation Jeunes Scientifiques Luxembourg (FJSL)**, with the precious support of the **Fondation Nicolas and Jean-Paul Lanners**, has been sending a laureate of the national contest "Jonk Fuerscher" to CASTIC, Asia's largest scientific contest.

This year, **Krzesimir Hyżyk** (13), student of the **European School of Luxembourg I**, won this prestigious award and was the youngest contestant at the CASTIC (Macao) with this project combining computer science and mobility: "Safe Trip Home From School".

Based on traffic simulations conducted on his daily commute, Krzesimir was able to identify how the installation of additional traffic lights would improve the safety for pedestrians on two specific junctions.

His project - inspired by his every day life - convinced the jury of CASTIC to honour Krzesimir with a well-earned bronze medal!

A long history of friendship between CAST and the FJSL:

Since the official accord of 2018, the Expo-Sciences Luxembourg has become an official award of the CASTIC. This year, it was awarded to a young Chinese scientist by the FJSL in China.

↓ **DELANO** | 05.08.2019
Luxembourg's Mr Worldwide

DELANO

LUXEMBOURG IN ENGLISH

LUXEMBOURG'S "MR WORLDWIDE"

NEWS • PICTURE OF THE DAY • 05.08.2019 • JESS BAULDRY



A young scientist from the **International School of Luxembourg** left a mark on judges at the **Youth Science Meeting in Coimbra**.



17-year-old **Seongmin Park** holds the Luxembourg flag. He represented Luxembourg at the **Youth Science Meeting in Coimbra**

Photo: Youth Science Meeting

There he was crowned "Mr Worldwide" for his networking skills and exemplary conduct.

Along with **Alex Cowan** and **Eunju Moon**, 17-year-old **Seongmin Park** was part of the winning team of the national **Jonk Fuerscher** contest for the "Mycelium for future" project.

The project aims to better understand the properties of the root network of fungus and explore its potential for replacing plastics.

At the end of July, **Park** was selected to represent **Luxembourg** in **Portugal**. He joined more than 70 participants from eight different countries. The students presented their projects to other young scientists, and attended lectures and workshops from different scientific fields.

EUNJU MOON • ALEX COWAN • SEONGMIN PARK • INTERNATIONAL SCHOOL OF LUXEMBOURG • LUXEMBOURG • SCIENCE

↓ **RTL TODAY** | 15.08.2019
Representing the Jonk Fuerscher in Israel

SCIENCE + ENVIRONMENT - YOUNG SCIENTISTS' FOUNDATION LUXEMBOURG

Representing the 'Jonk Fuerscher' in Israel

RTL - | Update: 16.08.2019 16:29



K. NISZ

For the very first time this year, the Foundation Jeunes Scientifiques Luxembourg (FJSL) – with the precious support of the Fondation Matanel – was able to send a laureate of the national contest "Jonk Fuerscher" to the International Summer Science Institute (ISSI) in Israel.

During this year's contest "Jonk Fuerscher" Camilla Hurst, student of the University of Oxford, won this prestigious award. Camilla has had a prolific past with the FJSL: at the age of only 18, she has already won prizes at four national contests in addition to the 4th prize in her category at the 2017 International Science and Engineering Fair in Los Angeles.

Her new project in engineering "The Wheelchair Accessibility Belt (WAB)" is a prototype of a complimentary device, which can be manufactured at low cost and easily be attached to the wheel independently by the user to increase the traction between the wheelchair and the ground, thereby facilitating accessibility to the outdoors for wheelchair users. She states in her project, that the inclusion of disabled people in outdoor activities increases both their mental and physical health, which the WAB can facilitate and thus promote.

A month-long program full of research, field trips and unforgettable experiences: From July 2nd – 25th 2019, Camilla fully immersed into scientific research in the campus labs: during the first three weeks, she was paired up with young scientists from Australia, South Korea, and the United States for an experimental investigation of the common project. In addition to attending lectures by Weizmann Institute scientists, she conducted field research in the Judean Desert and the Negev, acquainting her with the unique ecological, geographical, geological, zoological, and archaeological characteristics of the area.



↓ **JOURNAL** | 19.08.2019
Un Jeune Scientifique médaillé en Chine

Un jeune scientifique médaillé en Chine

journal.lu - 19.08.2019



LUXEMBOURG
TRACY HEINDRICHS

Depuis ses quatre ans, Krzesimir Hyzyk maîtrise la programmation informatique

Krzesimir Hyzyk, 13 ans, n'a qu'une passion dans la vie: l'informatique. Complètement autodidacte en programmation depuis ses quatre ans, il maîtrise désormais plusieurs langages informatiques. Grâce à l'encouragement de ses parents, il s'est présenté au concours de la Fondation Jeunes Scientifiques Luxembourg, «Jonk Fuerscher». Il y a remporté le premier prix qui permet de participer au CASTIC, un concours scientifique de renommée, à Macao, en Chine. Là, il s'est vu à nouveau récompensé pour son projet de simulation de trafic automobile. Le jeune chercheur nous présente son projet médaillé et son quotidien en tant qu'informaticien.

La sécurité des élèves au cœur du projet

Le programme informatique créé par Krzesimir voit le jour suite à un problème que l'élève de 3e à l'École européenne de Luxembourg rencontre quotidiennement. Il explique: «Quand je rentre de l'école, je dois traverser une route très, très fréquentée, qui a deux passages pour piétons mais aucun feu de circulation. Ce n'est pas très sûr pour les élèves qui doivent emprunter ce chemin, et en plus, je dois parfois attendre plus de cinq minutes pour pouvoir continuer mon trajet. Donc, j'ai créé un programme qui résout le problème, et l'ai présenté au concours de la Fondation Jonk Fuerscher.»

En gros, le programme de Krzesimir simule la circulation automobile. Il présente trois scénarios: dans le premier, il n'y a pas de feux de circulation sur les carrefours de la route, dans le deuxième il y en a un, et dans le troisième il y en a un sur chaque carrefour. En rassemblant les données de 412 simulations de dix minutes chaque, Hyzyk remarque que la présence de feux contrôlerait le flux de voitures, et par conséquent allégerait le trafic sur cette route. Ceci rendrait la route plus sûre pour les élèves l'empruntant. Lors que le jeune garçon apprend que son projet est sélectionné pour le CASTIC, il développe une version améliorée et interactive du programme où n'importe quel scénario de carrefour peut être exploré.

Comme on peut le constater, le projet est un véritable succès. Il gagne non seulement la compétition «Jonk Fuerscher» et la médaille de bronze du CASTIC, mais, en plus, il attire l'attention de la Ville de Luxembourg qui souhaite utiliser son programme pour résoudre les problèmes de circulation dans la capitale.

Un voyage à l'autre bout du monde

Quand Krzesimir remporte le concours «Jonk Fuerscher», il gagne également une place au sein de la compétition du CASTIC, où il doit alors présenter son projet à de nombreux visiteurs et juges. Accompagné par Carlo et Simone Hansen de la fondation «Jonk Fuerscher», il part pour Macao, en Chine, où il passe son temps à présenter et expliquer son projet aux visiteurs de l'évènement et aux juges. L'adolescent de 13 ans parle de l'expérience de quelques jours avec nonchalance. Ni le choc culturel, ni la grandeur de l'évènement, ni son jeune âge ne l'ont affecté. Ce qu'il retient surtout de cette expérience? «Il faisait très, très chaud. Je n'aime pas les températures élevées, et là, il faisait vraiment trop chaud.

Hormis la météo, Krzesimir Hyzyk se souvient d'avoir pu rencontrer d'autres jeunes scientifiques présentant des projets informatiques liés notamment à l'intelligence artificielle et la robotique. «J'ai fait de chouettes rencontres, surtout avec un garçon de mon âge qui lui aussi présentait un projet en informatique.» Le chercheur en herbe dit aussi avoir admiré les expériences des autres participants lorsqu'il en avait l'occasion.

Une passion pour la vie

Même si Krzesimir est quelqu'un de communicatif, qui raconte des blagues et s'anime lorsqu'il parle de ses idées, il aime travailler seul. Ses parents n'étant pas du tout impliqués dans le monde de la technologie et l'informatique, Krzesimir commence, dès l'âge de quatre ans à apprendre les langages informatiques. Par la suite, il fréquente des forums web pour apprendre encore plus de langues informatiques et leur utilisation. L'élève de 13 ans ne se souvient pas de son premier programme créé, mais il sait que cette passion pour la science l'accompagne depuis toujours et pour toujours. Elle consomme d'ailleurs la majorité de son temps: «La seule chose que je fais à la maison, c'est la programmation. Je passe huit à dix heures par jour à écrire des programmes sur mon ordinateur.» Selon lui, l'informatique est comme une langue. Si on veut apprendre à la parler couramment, il faut s'entraîner tous les jours.

Le garçon s'intéresse également à la robotique, la physique, la chimie et les mathématiques. Cependant, c'est dans le monde de l'IT qu'il veut évoluer tant qu'adulte. Vu la diversité de ses programmes, il n'a pas encore choisi le domaine de l'informatique dans lequel il voudrait travailler. «J'écris de tout, et dès que j'ai une idée de programme, je tente de la réaliser.» Pour ce qui est du futur proche, Krzesimir compte à nouveau participer au CASTIC l'année prochaine. Le jeune homme explique avec légèreté qu'il n'a pas encore d'idée concrète, mais que les huit mois à venir seront largement suffisants pour terminer d'écrire un nouveau programme. Une prouesse bien réalisable pour le jeune chercheur qui avoue avoir emporté son ordinateur en vacances cet été. Comme quoi, c'est en programmant que l'on devient programmeur. ●

↓ **WORT** | 26.10.2019
Mutig und engagiert

108 Samstag und Sonntag, den 26./27. Oktober 2019

Im Fokus

Vuesburger Blatt

FNR Awards



Mutig und engagiert

Der Fonds National de la Recherche zeichnet erneut herausragende Leistungen im Forschungsbereich aus

Von Jessica Maria Rauch

Seit nun bereits 20 Jahren unterstützt und würdigt der Nationale Forschungsfonds (FNR) die führenden Akteure auf dem Gebiet der Forschung. In stetiger Zusammenarbeit mit Wissenschaftler:innen der Universität Luxemburg oder einem anderen Institut in Großherzogtum Luxemburg, fördert das FNR mit Hilfe der Universitätspolizeien die besten wissenschaftlichen Arbeiten. In der vergangenen Ausgabe des FNR Awards wurden die besten wissenschaftlichen Arbeiten in drei Kategorien ausgezeichnet. Die Gewinner sind:

Sousana Eang

Fondation Jeunes Scientifiques Luxembourg

Unter der Schirmherrschaft des Großherzogs agiert die Fondation Jeunes Scientifiques zur Förderung des natur- und sozialwissenschaftlichen Interesses junger Menschen in Luxemburg. Sie ist die Plattform für eigene Projekte der Nachwuchsforscher:innen, ermöglicht ihnen die Teilnahme an kulturellen Austausch und konzentriert auch an Wettbewerben auf internationaler Ebene.

Der durch den FNR in der Kategorie „Outstanding Promotion of Science to the Public“ ausgezeichnete Wettbewerb „Jeune Forscher:in“ richtet sich an Jugendliche im Alter von elf bis 21 Jahren. Alleine oder in einer Gruppe von bis zu drei Personen entwickeln und präsentieren sie ihr Projekt aus den Bereichen Technologie, Natur- oder Humanwissenschaften. Eine Jury, bestehend aus Experten aus Forschung und Un-

ternehmen, bewertet diese Arbeiten und zeichnet die besten aus – das Geschlechterverhältnis ist dabei übrigens meist ausgeglichen.

Mit diesem Porridge soll schon frühzeitig das Selbstbewusstsein der Schüler:innen gestärkt und ihr Weg in eine akademische berufliche Zukunft beflügelt werden. Besonders reizvoll ist dabei der Austausch auf internationaler Ebene dank organisierter Forschungsreisen und Tutorienprogrammen.

Die immer größerem vom luxemburgischen Bildungsministerium geförderte Arbeit der Stiftung ermöglicht auch den hierigen Unternehmen, künftige Arbeitnehmer:innen zu einem frühen Zeitpunkt kennenzulernen und zu unterstützen.

Sousana Eang ist Direktorin der Fondation und arbeitet im Mitarbeiterbereich.



Als Vertreter:innen für Sousana Eang: Carla Hansen, Nouria Slomani und Lara Pfeiffer. Foto: A. Wolf

↓ **PAPERJAM** | 29.10.2019
FNR AWARDS 2019 Les meilleures recherches scientifiques récompensées

PAPERJAM
BUSINESS & LETZESBURG

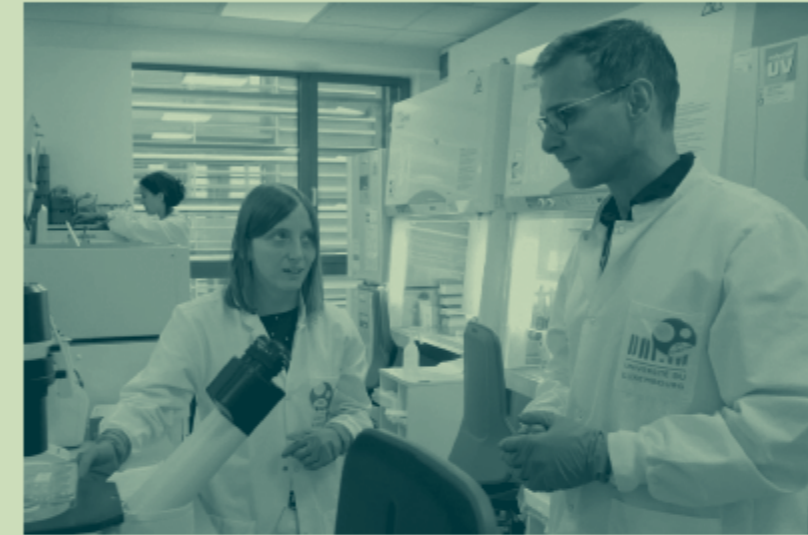
FNR AWARDS 2019

Les meilleures recherches scientifiques récompensées

Écrit par Pierre Pailler

Publié le 29.10.2019 • Édité le 29.10.2019

Partager



À droite, Antonio del Sol Mesa, du LCSB de l'Université du Luxembourg, qui a reçu, avec Satoshi Okawa, le prix de la «Publication scientifique exceptionnelle» des FNR Awards. (Photo: capture d'écran/FNR)

Six prix ont récompensé les travaux de scientifiques de l'Université du Luxembourg lors de la récente 11e édition des FNR Awards à Belval. Un événement qui veut encourager la communication entre chercheurs et promouvoir les sciences auprès du grand public.

La 11^e édition des FNR Awards, organisée récemment par le Fonds national de la recherche (FNR), a eu lieu à la halle des poches à fonte dans le quartier de Belval, à Esch-sur-Alzette, et a réuni 150 personnes, dont le ministre de l'Enseignement supérieur et de la Recherche, Claude Meisch. Cette cérémonie a pour but de récompenser les meilleurs travaux de recherche et de communication dans le domaine des sciences à Luxembourg, afin d'encourager la communication entre chercheurs et de promouvoir les sciences auprès du grand public et des jeunes.

Six lauréats de l'Université du Luxembourg ont été mis à l'honneur dans trois catégories différentes.

Dans la catégorie «**Publication scientifique exceptionnelle**», deux chercheurs du Luxembourg Centre for Systems Biomedicine (LCSB), Antonio del Sol Mesa et Satoshi Okawa, ont reçu un prix pour leur publication intitulée «**Transcriptional synergy as an emergent property defining cell subpopulation identity enables population shift**».

Eva Lagunas, Sina Maleki, Shree Krishna Sharma, Symeon Chatzinotas et Björn Ottersten, de l'Interdisciplinary Centre for Security, Reliability and Trust (SnT), se sont vus récompensés pour leur publication «Resource allocation for cognitive satellite communications with incumbent terrestrial networks».

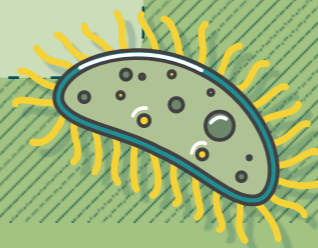
Dans la catégorie «**Thèse de doctorat exceptionnelle**», Riccardo Rao a reçu un prix pour sa thèse «Conservation laws in nonequilibrium thermodynamics: stochastic processes, chemical reaction networks, and information processing».

Linda Wampach, du LCSB, a quant à elle été récompensée pour sa thèse «Colonization and succession of the human gastrointestinal microbiome in neonates and infants at high risk of metabolic disease in adulthood».

Promouvoir les sciences auprès du grand public

Dans la catégorie «**Promotion exceptionnelle de la science auprès du grand public**», Juliette Pertuy, Laura Star, Noémie Guerisse, Malou Fraiture, Joanna Muz, Arnaud d'Agostini et Federica Amato, du LIH, ont reçu un prix pour leur activité «Science Quest».

Enfin, Carlo Hansen, Natalia Slioutova et Sousana Eang, de la Fondation jeunes scientifiques, ont été récompensés pour le concours national «Jonk Fuerscher».



↓ RTL | 31.07.2019
Serie FNR Award



↓ DELANO | 15.11.2019
Influencing the next generation of scientists

DELANO

LUXEMBOURG IN ENGLISH

INFLUENCING THE NEXT GENERATION OF SCIENTISTS

NEWS - LIFESTYLE - 15.11.2019 - RAYDOR A. GERHARDTSEN

Although Henri Ahola and Negin Baradari may seem to have little in common, they both were laureates of the “Jonk Fuerscher” (young scientists) competition. In light of their upcoming event organised by the Foundation for Young Scientists Luxembourg, they spoke with Delano about the role the competition--and science--have played in their lives.

Henri Ahola is only 15 years old, but his work is already gaining the attention of computer scientist teachers and professors, who are considering his tool to use in their classrooms.



Negin Baradari and Henri Ahola, both laureates of the Jonk Fuerscher* (young scientists) competition in 2007 and 2019, respectively

Photo: Delano

Ahola, a student at the European School in Kirchberg, developed an “8-bit CPU visualiser”, which he explains is a tool that shows the inner workings of a simplified 8-bit computer processor. “Most things that are electric are powered by a processor, but the concept of it might be hard to grasp,” he told Delano. “It’s modelled like a 3D cube which you can turn, you have different things on each side, and it animates what the processor is doing as visually a processor, the different parts and the interaction between each of them.”

He says he began the project as a “self-learning experience”, simply to feed his own curiosity. During his free time, he studied from a variety of sources to gather the information necessary to, in turn, create his tool. His work paid off: he was a laureate in the 2019 Jonk Fuerschercompetition, organised by the Foundation for Young Scientists Luxembourg, which in turn provided him with the opportunity to travel to Phoenix, Arizona (US) in May to take part in the Intel International Science and Engineering Fair (Intel ISEF) alongside some 1,800 students. “While I didn’t necessarily win anything at the competition, it was a really fun experience. I made a lot of new friends and got to see some really interesting projects,” he said.



Ahola’s interest in science has been long in the making: he says very early on, “we had a vacuum cleaner in our house which made a lot of noise—I was actually scared of it—and maybe that is what got me interested in what made that noise.” He began building robotics through Lego kits, then tried his hand at the Arduino microcontroller platform, which were fascinating since “you get to see whatever you create in the physical world”. Now, he says, he does fewer hardware projects, more in software, since it can be done on a laptop.

So what does he hope to do with his talent after school? Ahola says it remains to be seen. “Since technology changes so fast now, you never know what’s going to be trending in five years.”

Giving back to young scientists

Like Ahola, Negin Baradari was a laureate—but 12 years earlier, in 2007, for her work titled “DNA & polymerase chain reaction”. As she explains, “I won the competition with a biology project working at the CRP-Santé, a lab near CHL which since moved to Esch/Belval, working for a post-doc André Steinmetz, who is still around but retired but still working,” she says.

“I was basically cloning DNA and making RNA and sequencing DNA from the age of 14-16 years, after school, because I had found a friend, and that was Dr [André] Steinmetz.” She says she is still in touch with him, helping out when she can with the CBD project Steinmetz is working on—a project she calls “very grounding”.

After becoming a 2007 laureate, Baradari headed to the London International Youth Science Forum which, she says, was a “tipping point” for her. “There were 400 of us, it was amazing seeing such international diversity, and science bringing everyone together.” She was so impressed with her experience there that, in turn, she applied to become a counsellor and has been involved with the LIYSF in one way or another since the age of 16. She attests there’s a strong alumni base, members of which she tries to catch up with when she travels.

Baradari, a Luxembourgish with Iranian roots, says “it wasn’t even a question what to study”, that in some way they would all end up working in science in one form or another. Her older brother did become a doctor, her other brother went into natural resources and tech startups. Baradari, on the other hand, decided not to go into science, instead opting to study law in the UK and the US. She now works as parliamentary counsel in the Chambre des Députés. She’s also always pursued creative interests as well—jewellery design, for example—and is interested in where fashion and law intersect. But science has nevertheless kept a role in her life: she’s a member of Cryptomize, an AI-based mining software, and finds herself interested in the startup ecosystem.

Baradari and Ahola will take part in an event focused on a knowledge-based society and economy, organised by the Foundation for Young Scientists Luxembourg, on 29 November at Cercle Munster. For more information or to register, visit [the event page](#).



↓ CSL | 27.11.2019
Join FJSL’s interactive conference



CITY SAVVY
LUXEMBOURG

Discover Luxembourg | Places to Go

Join FJSL’s interactive conference, “Towards a Society and Economy Based on Knowledge”

written by City Savvy Luxembourg | 27th November 2019

Fondation Jeunes Scientifiques Luxembourg

CONFERENCE: Towards a Society and Economy Based on Knowledge

November 29th, 2019
Cercle Munster

Speakers:
Henni Ahola - current laureate of the “Jonk Fuerscher” contest
Negin Baradari - former laureate of the “Jonk Fuerscher” contest

Language: English
Conference: 10€
Free of charge for students
Reservations are mandatory at
reservations@munster.lu

Cercle Munster
5,7 Rue Munster
1160 Luxembourg
for more info visit www.fjssl.lu

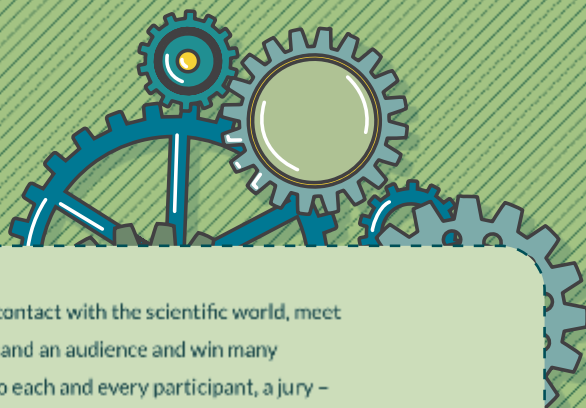
with the support of capitalatwork

The Fondation Jeunes Scientifiques Luxembourg (FJSL) is an organization that promotes natural and social sciences among young people in Luxembourg and provides a platform where they can exhibit their own scientific projects, participate in cultural exchanges and win prestigious awards.

The foundation was first established under the form of an association in 1977 and a separate foundation in 1992 to assure a steady financing of the association’s activities. In 2017, it was awarded the High Patronage of his Royal Highness the Grand-Duc and its contest is recognized by the UNESCO.

Each year, the FJSL organizes the “Jonk Fuerscher” national contest, which gives young people between the ages of 11 and 21 the opportunity to participate with their project of choice either by themselves or in a team of up to 3 people. Chemistry, Musicology, Engineering, Linguistics, and Robotics are just a few of the many research fields they can set their projects in, and the Foundation strongly encourages its participants to create interdisciplinary projects.

On March 28-29 the FJSL will be organizing the 49th edition of its national contest, the registration deadline is **14th February 2020** (www.fjssl.lu/national-contest-jonk-fuerscher).



The contest is a great opportunity for the participants to get in contact with the scientific world, meet like-minded people, present their own projects in front of a jury and an audience and win many prestigious prizes. In order to allocate the best possible award to each and every participant, a jury – composed of selected professionals from the research and technology industry – evaluates the projects following different criteria guaranteeing that no award is being allocated randomly to a project.

To reward the students for the time and effort they have put into creating a project and presenting it in front of a jury, every participant of the contest receives a prize in form of an experience: the participation in an international contest, forum, or expo outside of Luxembourg, such as the **European Union Contest EUCYS** (the biggest science contest in Europe), the **China Adolescents Science and Technology Innovation Contest CASTIC** (the most important scientific contest in Asia), or the **Intel International Science and Engineering Fair ISEF** – the biggest scientific contest in the world taking place in a different city in the US every year, with over 1.500 participants, aged between 15 and 19 from 70 different countries.

In addition to the contest, the **Fondation Jeunes Scientifiques** will be organizing a conference on **November 29th at the Cercle Munster**, bringing together a current and a former laureate of the Jonk Fuerscher contest, to present their respective research in an interactive conference "Towards a Society and Economy Based on Knowledge". Henri Ahola, a current Jonk Fuerscher, will give a presentation on his science project the "8-bit CPU Visualiser", and share his experience from the national contest and beyond. This will be followed by a keynote speech by Negin Baradari, a former participant of the national contest and all-around talent. Her presentation will focus on the topic of technologies, their impact on our everyday life and privacy.

Reservations to the conference (and optional dinner) are mandatory and should be sent to: reservation@munster.lu

Language: English

Conference: 15€ (Conference + dinner: 50€)

The conference is FREE for all students.

Program

7h00 PM : Aperitif

7h30 PM : Conference:

- Opening Speech by *Carlo Hansen*, President of **FJSL** and by *Pascal Kayser*, Senior Wealth Manager at **CapitalatWork Foyer Group** (10 min)
- « the 8-bit CPU Visualiser tool » by *Henri Ahola* (15 min)
- Magic at the Intersection of Divergent Fields » by *Negin Baradari* (45 min)
- Q&A (15 min)

9h00 PM : Dinner