

52nd

NATIONAL
CONTEST



JONK FUERSCHER

17th – 19th
MARCH
2023

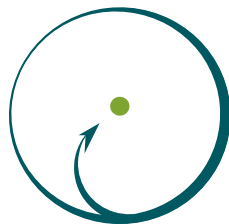
FORUM CAMPUS
GEESSEKNÄPPCHEN

Open for Public on
Sunday from 1pm



Jonk Fuerscher
youtube.com

POCKET
GUIDE



Fondation Jeunes
Scientifiques
Luxembourg

Under the High Patronage
of His Royal Highness the Hereditary Grand Duke

With the support of



LE GOUVERNEMENT
DU GRAND-DUCHÉ DE LUXEMBOURG
Ministère de l'Éducation nationale,
de l'Enfance et de la Jeunesse

National Jonk Fuerscher Contest
supported by



Fonds National de la
Recherche Luxembourg



WELCOME

WELCOME, DEAR PARTICIPANT!

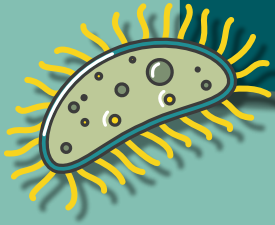
The Concours National Jonk Fuerscher is about to crown a new set of bright and innovative young scientists for its 52nd edition. As always, the competition will showcase an array of exciting research projects and the ingenuity and creativity of young scientific minds.

Their projects touch on important issues such as the rise of artificial intelligence, which is transforming our world, and the urgent need to address global warming, which threatens our planet's future.

Through their innovative research, they have shown us that they are not only aware of these challenges but are also actively seeking solutions to them. These young scientists have demonstrated they can think beyond the present and envision a sustainable, equitable, and just future.

CARLO HANSEN

President



DEAR YOUNG SCIENTISTS,

I am pleased to welcome you to this 52nd edition of the National Jonk Fuerscher Contest. Your participation is a testament to your passion, dedication and hard work in the field of Science.

Beyond the competition aspect, the national Jonk Fuerscher Contest is a platform to showcase your research, share your ideas, and engage with link-minded peers. It is an opportunity to learn from each other, build new connections and pave the way for a brighter future and so, on a national but also international scale.

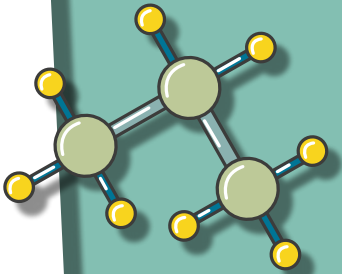
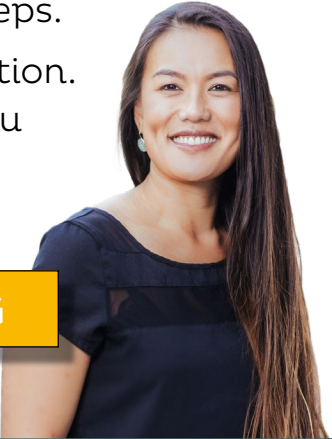
As young scientists, you are the driving force behind innovation and progress. Your work has the potential to shape the world we live in and make a difference in people's lives. I have no doubt that you will continue to push boundaries, challenge the status quo, and inspire others to follow in your footsteps.

Once again, welcome to this national competition. I wish you all the best of luck and hope that you make the most of this experience.

Let the competition begin!

SOUSANA EANG

Director



INFO SHEET

VIRTUAL PLATFORM

DAY 1
FR 17.03.

9:00 - 17:30
Jonk Fuerscher
Contest

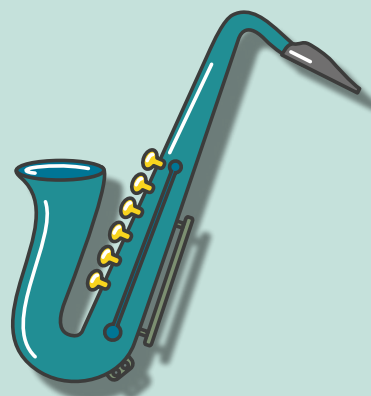
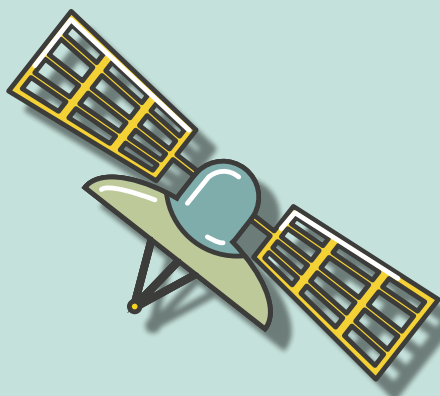
DAY 2
SA 18.03.

9:00 - 17:30
Jonk Fuerscher
Contest

DAY 3
SO 19.03.
8:00 - 20:30

13:00 - 16:00
OPEN DOORS
16:00 - 18:00
AWARDS
CEREMONY

18:15 - 20:30
COCKTAIL



! IMPORTANT !
**National Jonk Fuerscher
Contest Participants**
Check your e-mail inbox
for your individual time
slots for **the live streamed**
presentation of your project
on Friday or Saturday

WHERE ART MEETS SCIENCE

Remember to tune into the live stream
every now and then, not only to see
our national participants present
and your own project-video, but also
to enjoy some performances by local
artists such as **Corbi**, **Culture the Kid**,
Don Gio, **Jon Chase**, **Violin Trio** and
a key note speech by **Sébastien Faye**.


More details in the schedule
on the next page ↓ ↓ ↓

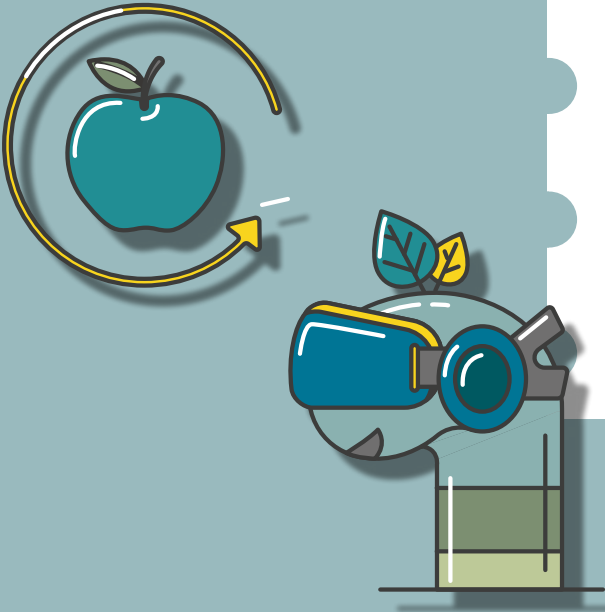
SCHEDULE

FRIDAY – March 17

SATURDAY – March 18

SUNDAY – March 19

9:00 – 9:15	OPENING SPEECH by Carlo Hansen (President FJSL)	9:00 – 9:15	OPENING SPEECH by Serge Quazzotti (Director IPIL)	8:00 – 9:00	BOOTHS PREPARATION
9:15 – 10:45	LIVESTREAM: Presentation of Projects Engineering	9:15 – 10:45	LIVESTREAM: Presentation of Projects Chem Phys Environment Biology, Medicine	9:00 – 10:00	 Showcasing your project internationally
10:45 – 11:00	MUSICAL INTERLUDE Culture the Kid	10:45 – 11:00	MUSICAL INTERLUDE Violin Trio	9:00 – 12:00	SCIENCE WORKSHOPS
11:00 – 12:30	LIVESTREAM: Presentation of Projects Engineering Mathematics Biology plants	11:00 – 12:30	LIVESTREAM: Presentation of Projects Biology, Medicine Humanities	12:00 – 13:00	LUNCH BREAK
12:30 – 13:15	LUNCH BREAK Livestream break	12:30 – 13:15	LUNCH BREAK Livestream break	13:00 – 16:00	OPEN DOORS
13:15 – 15:00	LIVESTREAM: Presentation of Projects Biology plants Biology Chem Phys Environ	13:15 – 15:00	LIVESTREAM: Presentation of Projects Humanities IT DATA	16:00 – 18:00	AWARDS CEREMONY
15:00 – 15:15	MUSICAL INTERLUDE Don Gio	15:00 – 15:15	MUSICAL INTERLUDE Corbi	18:15 – 20:30	COCKTAIL
15:15 – 17:30	LIVESTREAM: Presentation of Projects Chem Phys Environment	15:15 – 17:30	LIVESTREAM: Presentation of Projects IT DATA Space Engineering		



PRACTICAL INFO

Help us create **BETTER EVENTS!**

Organising events is
a learning process!
Please take the time to fill out
our **SURVEY** and share your
feedback with us, so we can
make the upcoming events
even more to your liking.

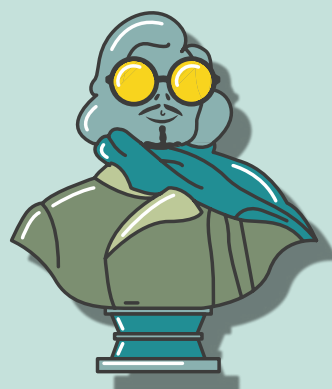
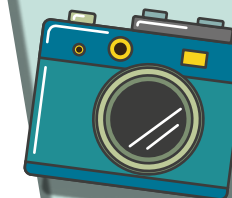
Events end but
memories last forever...

Make sure to stop by our
PHOTOBOOTH and create
some of your own memories
of the 52nd national Jonk
Fuerscher contest!

If you share them on your social
media profiles, please don't forget
to tag us!

@fjslux

Fondation Jeunes Scientifiques Luxembourg



History

of the Fondation Jeunes Scientifiques Luxembourg

1971

First national
Jonk Fuerscher
contest.

1977

Established under
the form of an
association.

1992

creation of the foundation
*On a national level: works closely with the Ministry of
Education, the National Research Fund, the European
Commission, the University of Luxembourg, and the
Service National de la Jeunesse, to name a few.

2009

First edition of the
international Expo-
Sciences Luxembourg.

2017

The FJSL is awarded
the High Patronage
of his Royal Highness
the Grand-Duc.

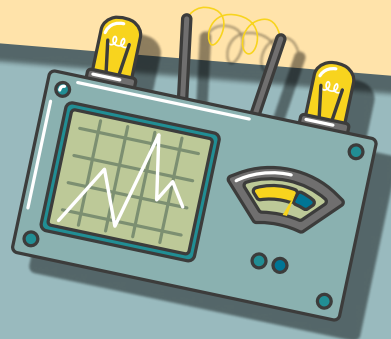
2020

The High Patronage
is taken over by his
son the Hereditary
Grand Duke HRH
Prince Guillaume.

ACTIVITIES

The 52nd National Jonk Fuerscher awards ceremony will feature **four exciting workshops** that will showcase the innovative and creative projects of the young scientists.

The workshops are designed to provide an interactive and engaging platform for the participants to share their research and ideas with the audience. Here are the four workshops that will be part of the awards ceremony:



1



Scienteens Lab: Discovering Parkinson's disease

The Scienteens Lab – De Labo fir Jonker – is the first research lab for high-school students in Luxembourg. It is an extra-curricular learning centre of the University of Luxembourg that offers workshops designed to spark their interest in science, show them the latest trends and technologies in research and supports them in their career choice. The Scienteens Lab welcomes classes from all over the Greater Region.

2 & 3



Girls in Tech: Coding Rock, paper, scissors with Python

Tokens and cryptocurrencies

Founded in 2007, Girls in Tech is a nonprofit organization dedicated to eliminating the gender gap in tech. We have more than 60,000 members in 50+ chapters around the world. These amazing people join us for the first time and will also have an opportunity to present their activities during the open doors event!

4



ESERO: Design your Water Rocket

ESERO Luxembourg is a joint project of the European Space Agency, the Luxembourg Space Agency and the Ministry of Education. Our aim is to raise students' interest in science, technology, engineering and mathematics. To this end, the themes of space travel and space are integrated into the school curriculum in an exciting and innovative way. In this way we try to improve students' skills in mathematics, computer science, natural sciences and technology.

PROJECTS

FRIDAY – March 17

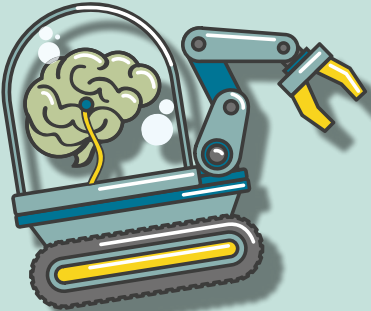
TIME	PROJECT TITEL	PARTICIPANT NAME	FIELD
09:15	Local Positioning System	Krzesimir Hyżyk	Engineering
09:30	Effizien von HHO-Motoren	Deniz Krier & Arthur Julien	Engineering
09:45	Investigation on radiation exposure	Emma Mules	Biology
10:00	SipTip	Theodor Stanica & Gaspar Aruai	Engineering
10:15	Optimisation de l'altitude d'une fusée à eau	Noémie Rappenne	Engineering
10:30	Shoes with electricity generation during walking and running	Eymen Esmer	Engineering
11:00	2020ForALL	Arnit Dey	Engineering
11:15	The Beerobotot & the Beerocket	Gonçalo Fonseca	Engineering
11:30	Filament aus Flaschen	Loris Duhr	Engineering
11:45	Xenotransplantation	Nishita Vella	Engineering
12:00	Edge Points in Three-Dimensional Arithmetic Billiards	Steve Mendeleeu	Mathematics
12:15	Cylindre Botanique Hydroponique	Paul Fontaine & Fabien Friederici & Jonathan Karg-Despeux	Biology plants
13:15	Evaluating the effects of acid rain in a controlled environment	Alexander Lebedev	Biology plants
13:30	Mycogrow: The benefits of Mycorrhiza	Dylan Ramsurrun & Alina Schweitzer	Biology plants
13:45	Evaluating the Efficiency of Hydroponic Farming	Kyna Bhandari	Biology plants
14:00	Effect of mould on us and products around us	Alexandra Doroschenko	Biology
14:15	How Memory works?	Shérine El Hafidi	Biology
14:30	To what extent are certain treatments used to prevent hormone breast cancers	Aikaterina Karageorgiadi	Biology
14:45	Which biodiesels made from the following vegetable oils: olive oil, sesame oil, sunflower oil, canola oil and corn oil combust the best?	David Delli Zotti	Chem Phys Environment
15:15	Neptune: The Future of Energy	Christopher Gargiulo & Thomas Litt	Chem Phys Environment
15:30	Rainwater Harvesting	Xinyi Xiong & Sanaa Bhandari & Lyra Wells	Chem Phys Environment
15:45	Study of the reliability and scientific added value of DIY solar cells present on the Internet	Suen Weyrich & Felix Petesch & Miguel Cerqueira	Chem Phys Environment
16:00	The Digital Laboratory	Tanay Karnik & Aurelia Wells	Chem Phys Environment
16:15	Mask Mission	Rebecca Kranjec & Giulia Viaggi & Margherita Cardini	Chem Phys Environment
16:30	Analyse der Methode des Druckluftantriebs und ihre Anwendung auf Modellraketen	Moritz Rohner	Chem Phys Environment
16:45	Plasma Fusion for the future	James Lippert & Pierre Vezan	Chem Phys Environment



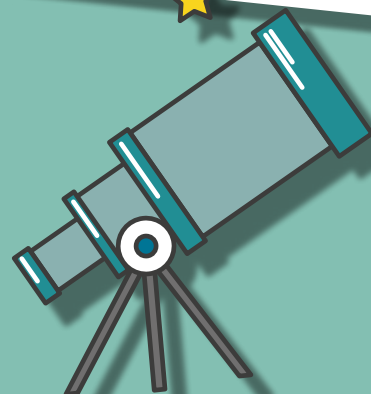
PROJECTS

SATURDAY – March 18

TIME	PROJECT TITEL	PARTICIPANT NAME	FIELD
09:15	Assessing the Viability of Nuclear Fusion as a Component of Energy Generation	Alina Liedke	Chem Phys Environment
09:30	The science behind Indian Henna	Darina Dyba & Tanishka Panday	Chem Phys Environment
09:45	Acid Against Anxiety	Petra Straga	Biology, Medicine
10:00	Alcohol – quite a common poison?	Adriana Senn	Biology, Medicine
10:15	Brain Tumors	Sarah Mackel	Biology, Medicine
10:30	Power of implants and the fascinating ways pets can recover	Bogdana Harashenko	Biology, Medicine
11:00	Investigating the effect of sulphur dioxide on fruticose lichens in Luxembourg	Illona Dausse	Chem Phys Environment
11:15	Kartografische Rakete für Marsmissionen	Rodion Zaichikov	Engineering
11:30	Methods for detecting Telomerase in breast cancer diagnosis	Séléna El Hafidi	Biology, Medicine
11:45	An investigation into the antiseptic properties of Manuka honey	Amelia Hatch	Biology, Medicine
12:00	Venom of scorpion can reduce the severity of Rheumatoid Arthritis	Sofia El Hafidi	Biology, Medicine
12:15	Theory of Institutional Evolvment by Conscious Arbitrariness	Daniil Murzykaev	Humanities
13:15	How different teaching methods effect students'memorization	Shemsy Badr & Angelika Xydakis & Gil Luka Reckinger	Humanities
13:30	What are Dreams?	Awa Ndiaye & Belmin Klica	Humanities
13:45	Manipulationun	Emma Braun & Nora Braun	Humanities
14:00	Lifestyle factors of university students and its affect on the prevalence of back pain	Paula Den Otter & Alexandra Senn & Arvidas Andersen	Humanities
14:15	Marbles VR	Maxime Buck	IT DATA
14:30	IMPACT OF ARTIFICIAL INTELLIGENCE ON TODAY'S SOCIETY	Kevin Freitas	IT DATA
14:45	Robot Control Simulation Using Deep Reinforcement Learning	Bartlomiej Nowak	IT DATA
15:15	Machine Learning, an Ally in Breast Cancer Prediction	Federica Maestri	IT DATA
15:30	Studified – A software process for verifying student identities online	Avanti Sharma	IT DATA
15:45	Quiz	Calin Ungureanu	IT DATA
16:00	Plantit	Batool Bdour	IT DATA
16:15	Can we see the objects left by man on the moon	Adam Goraj & Maciej Goraj	Space
16:30	Black Hole	Sofia Chernolutska	Space
16:45	Autonome unbemannte Flugobjekte–Anwendung zur Lösung zeitgenössiger Probleme	Lio Delli Zotti & Bob Delli Zotti & Joé Delli Zotti	Engineering



JURY



Serge QUAZZOTTI

President of the Jury

Director / IPIL

Christelle BAHLOWANE

Clinical research Assistant / LIH

Maude PAULY

Membre Cellule scientifique
à la chambre des députés

Serge SCHNEIDER

Head of unit Analytical
toxicology / LNS

Yves MISCHO

Pharmacien d'officine

Félix NOTHAR

Co-Director of Engineering /
Accumalux

Jacek STANKIEWICZ

Research Associate /
University of Luxembourg

Marianne BAUSCH-KOENIG

Astrophysicienne, retraitée

Dr Kjell SERGEANT

LIST Biologist

M. Paul SCHOSSELER

Ministère de l'énergie

Philippe SERVAIS

Pharmacist / Pharmacie
de Kehlen

Sébastien WIERTZ

General Manager / Paul Wurth

Yannick GAASCH

Doctorant en philosophie /
Universität Bonn

**Ana Cristina
BALTAZAR GARDUÑO**

Electronics Design Engineer /
Redwire Space Europe

Thomas SCHOOS

Deputy director General / MECDD

ARTISTS

LINE UP

CULTURE THE KID

Hip Hop / Alternative



Fr 17.03



Culture the Kid (Matteo Griz Wolff) has always had an attraction to music. As a child, he bathed in the music he heard from both his Luxembourgish father and his Brazilian mother. Music has always accompanied him throughout his early years, pushing him to take guitar lessons and write songs to accompany the playing. He then joined the collective „Rock club“ created by Chris Hewett and Fred Barreto at age 13 which gave him the chance to make his first experiences in live stage performance with a band on numerous venues such as the „Fête de la Musique“ in Luxembourg. At age 14, Matteo stumbled upon rap and instantly felt attracted to the numerous possibilities of expression the genre contains. In its diversity and its greater depth in terms of lyrics, he found a way to project a more complete image of himself into them and thus have his music fulfill its introspective role for the young man to a greater extent. Culture the Kid places himself among the new-school Hip-Hop stream but tries to keep close ties to the roots of what the genre stands for. By retaining an organic sound to his beats, Culture tries to assure this meddling of times and styles. In December 2020, Culture participated in the „The Qwest Freestyle Challenge“ by Rocklab in which participants received a beat on which they had to perform a freestyle themed „a new world“. Along with fellow rappers DaMensa and Mellow, Culture won the challenge by public voting, winning a recording session along with the challenge’s producers to record an original song on the given beat. More recently, his original song ‚Glass Walls‘ contained in his first mixtape „General Culture“, was a great success and managed to land in the local ‚Eldorado Chartbreaker‘ and to remain in the first place on the station’s charts for two weeks.

ARTISTS

LINE UP

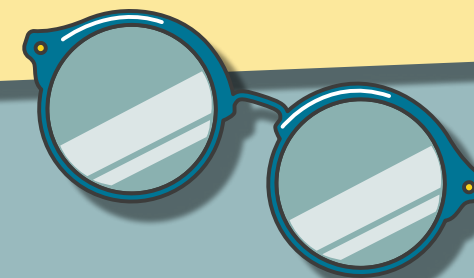
Fr 17.03

**DON GIO**

Reggae / Hip Hop



Originally hailing from Bari, Italy, before arriving in Luxembourg. It is on this adopting land that the future Don Gio made his debut in music. At first, there was Hip-hop, especially that of Snoop Dogg, Dr. Dre, and the likes; then came Reggae, that of the great Bob, of course. The outcome is a bifurcation that is fundamentally positive, and to embellish his world, Don Gio borrows the voices of syncopated rhythms and benevolent dialogue. Determined to put on record what he does naturally on any given stage; he released two EPs, “Red Lion” (2017) and “Fyah Blaze” (2018), which allowed him to multiply the number of live performances. After more than fifty dates in two years – playing in France, Belgium, Italy, and Luxembourg, including the opening slot for the legendary Sniper at Rockhal and not to mention the numerous appearances on the radio, Don Gio is now taking things to a new level. With a first full-length album called “Educate Yourself” – released on 20th April 2019. As the name already suggests, it speaks of emancipation, self-reflection, and critical thinking, a recipe that he applies with passion in his art, through sincere lyrics (in English, French and Italian) and a much richer sound thanks to the support of the live band R.I.C. Just like his fellow peers and constant supporters such as RIC (Roots Intention Crew) and De Läb, Don Gio constantly navigates between reggae and conscious rap. A good word that he intends to sow again and again in his wake.

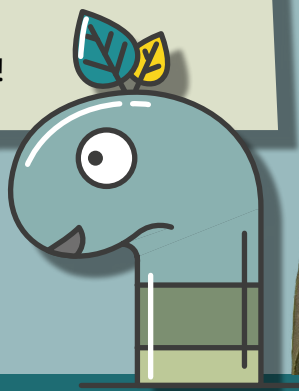


ARTISTS

LINE UP

Sa 18.03

Corbi, known to many as the front rapper of the infamous Luxembourgish hip hop band De Läb, is one of Luxembourg's most influential lyrical rhymers. His solo set, along with the legendary DJ PC on the decks, has been part of Luxembourg's cultural hip-hop heritage for over a decade now. Having played every stage in Luxembourg there is, de Kueb made himself a name due to his energetic live performances and mind-blowing freestyles. His debut solo album „De Gëllene Stull“ was released in March 2015 and celebrated accordingly with a successful release party at Rockhal. His new album „Kuebemanía“ was released in early summer of 2022. Best be prepared, as Corbi is already feared for tearing up stages, he will recklessly continue to do so!

**CORBI**

Rap / Hip Hop

ARTISTS

LINE UP

VIOLIN TRIO

Jo Schmit

Catherine Posing

Anna Molitor

Sa 18.03

The fondation Jeunes Scientifiques Luxembourg is thrilled to welcome this young Trio composed of Jonk Fuerscher Alumni for the second time, during the National Jonk Fuerscher Contest.

“Mir sinn dréi Schülerinnen aus dem LCD. Mir hunn allen dréi 19 Joer a maachen schon séitiwwer 10 Joer Musik”.

“We are three students from the Lycée Classique Diekirch. At the age of 19, we already practice music since over 10 years”.



ARTISTS

LINE UP

So 19.03



JON CHASE

The Science Rapper

Jon Chase is a freelance science communicator, author and rapper based in South Wales. Having completed an honors degree in Aerospace Engineering he then gained a BSc in Science and Science Fiction and a Masters degree in Communicating Science. Jon was also an associate lecturer at the University of Glamorgan for a year following graduation.

He has an intense passion for scientific thinking and believes that knowledge should be made available in a way that allows as many people as possible the opportunity to gain access to it. He was identified by the Guardian in 2008 as education's next big thing after producing a science rap video for NASA about astrobiology.

In addition to being a science presenter, Jon has co-authored three books. "Space, Time, Machine, Monster: Doctor Who Edition" (2015), "The Science Of Star Wars: The Scientific Facts Behind the Force, Space Travel, and More!" (2016) and "The Science Of Harry Potter: The Spellbinding Science Behind the Magic, Gadgets, Potions, and More!" (2017).

Jon is also the UK's foremost proponent of Science Raps and as such will perform on stage during the closing ceremony!



KEYNOTE SPEAKER



SÉBASTIEN FAYE

“The last few years have seen a phenomenal growth in the development of new digital services. Whether we are talking about communication technologies (5G, 6G), artificial intelligence, digital twins or any other related trend: the opportunities to innovate for a country like Luxembourg or more globally in Europe are real and very concrete.

The work carried out at the Luxembourg Institute of Science and Technology (LIST) is a perfect example of how multidisciplinary research and innovation activities can be used to create applications and services of significant interest to the country and its citizens. I would like to emphasise the importance of this work and the opportunities it represents for the future generation of researchers. Being curious, collaborating together, is of course key there.”



As a researcher in the field of wireless communication networks, and more generally in computer sciences, Dr. Sébastien Faye has seen in recent years the incredible pace at which digital technologies have evolved, and the outstanding opportunities this could bring. Research and innovation activities in these fields are constantly progressing and offer enormous opportunities, even though they are challenging to address.

Through this keynote, Sébastien wants to present his experience by focusing on concrete examples that can serve as inspiration for young scientists starting their career. An invitation to embrace new ideas and technologies, and to never stop learning. Concrete implementation examples of research projects exploiting the latest advances in wireless networks, sensor technologies and artificial intelligence will be presented.

MEET THE VOLUNTEERS



Krzesimir Hyzik

Alex Muller

Amaya Sarmiento Echarri

Marie Barberon

Anna Molitor

Krzysztof Goraj

Veneranda López Días

Gitanjali Thakur

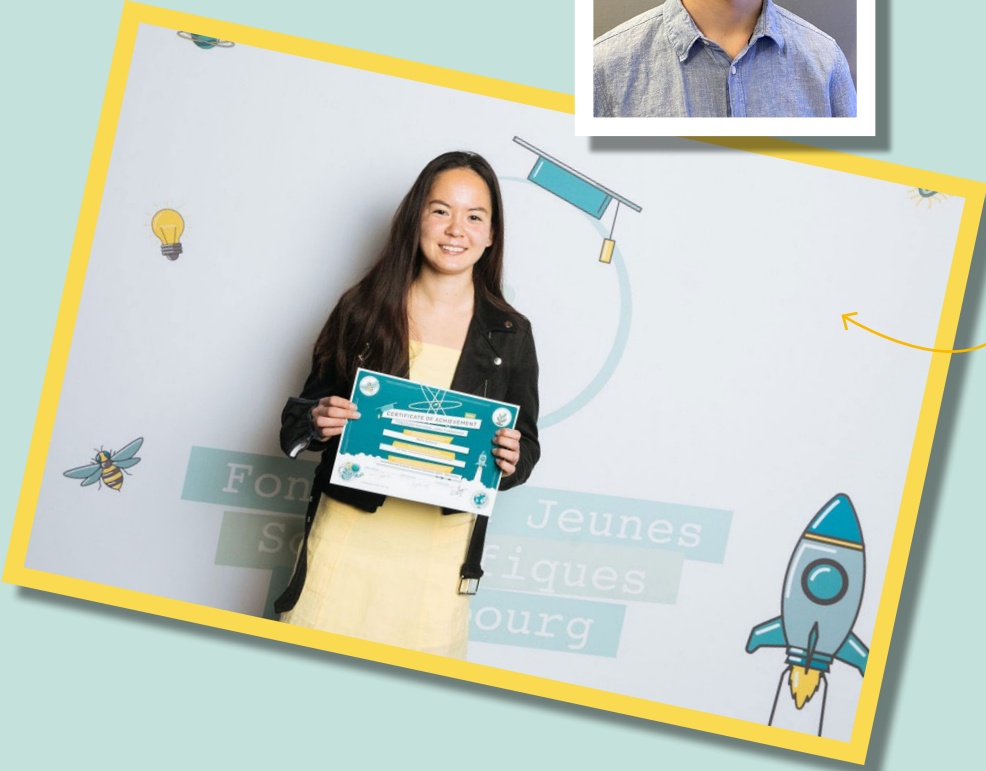
Ozgu Gumustekin

Dylan Ramsurrun

Ben Hansen

Lucie Zeches

Rocio Lopez Perez



FONDATION

NATIONAL JONK FUERSCHER CONTEST



DANIELA ARCONÉ

Chargée de coordination

“Generations need to work together to protect our planet and to keep evolving, innovating and striving. The FJSL, provides exactly this; alumni, current professionals and our Young Scientist come together to support and work on new creative scientific projects. Being a part of this growth, is why working at the FJSL is so important.”



EDOUARD OLSZEWSKI

Chargé de communication

“Participer à l'élaboration et la promotion des activités de la FJSL, c'est offrir un porte-voix aux jeunes qui ont la science pour passion. C'est aussi encourager un nouveau public à prendre conscience du rôle que tout un chacun peut jouer à l'heure où la méfiance à l'égard de la science ne cesse de croître, mais où les défis relevés avec succès grâce à l'apport des cultures et méthodes scientifiques sont de plus en plus nombreux!

Parce que nous avons beaucoup à apprendre de cette nouvelle génération et parce que les bienfaits d'une participation à nos activités sont démontrables avec un recul sur 51 éditions, je suis fier de faire partie de cette aventure!”



LUIZA ANDRADE

Executive Assistant

“I had the honor to participate in the National Jonk Fuerscher Contest in 2021 which was an amazing experience and a great opportunity, I believe everyone should take. We were offered workshops to help in various areas of the project such as building a presentation and speaking on stage, but also constant support from the staff of FJSL.

The contest gave me the opportunity to participate in the Exposciences Occitanie 2021 virtually and represent Luxembourg abroad. I was faced with another great opportunity and now I am currently doing an internship at the FJSL office as an executive assistant, helping organize, promote the event and being part of the staff and supporting the next young scientists.”



HANNA SIEMASZKO

Podcast Host

“Malheureusement, de nos jours, nous ne disposons pas d'assez de temps pour vraiment écouter l'autre. Nous ne laissons pas non plus toujours la parole aux jeunes générations. Ce que fait la FJSL, c'est leur offrir une plate-forme pour développer leur passion, apprendre la méthode scientifique et faire entendre leur voix.

Je trouve que c'est un réel privilège d'être parmi leurs premiers auditeurs et je dois souligner que les participants au Jonk Fuerscher Contest me donnent de l'espoir pour l'avenir.”

SPONSORS INSTITUTIONNELS



SPONSORS PRIVÉS



SPONSORS EN NATURE



PARTENAIRES



Seit 2020 organisiert F.J.S.L. einen Austausch in Kooperation mit der Stiftung Jugend forscht e. V., der es Preisträgerinnen und Preisträgern des jeweiligen nationalen Wettbewerbs ermöglicht, an einer Aktivität der jeweils anderen Organisation teilzunehmen. Jugend forscht ist Deutschlands bekanntester Nachwuchswettbewerb. Ziel der gemeinsamen Initiative von Bund, Ländern, Zeitschrift stern, Wirtschaft, Wissenschaft und Schulen ist es, junge Talente in Mathematik, Informatik, Naturwissenschaften und Technik (MINT) frühzeitig zu finden und gezielt zu fördern. Pro Jahr führt Jugend forscht 120 Wettbewerbe auf Regional-, Landes- und Bundesebene durch.

PARTENAIRES MÉDIATIQUE



Forum Campus Geesseknäppchen
40, boulevard Pierre Dupong
L-1430 Luxembourg
B.P. 1387 | L-1013 Luxembourg
Tel.: +352 661 562 732
contact@jonk-fuerscher.lu



Fondation Jeunes
Scientifiques
Luxembourg