



## **EUCYS**

### **BACKGROUND INFORMATION**

Date: 11-09-2019

*Research and  
Innovation*

## **31 years of European Union Contest for Young Scientists (EUCYS)**

### **EUCYS in numbers**

**31 years** of EUCYS

**25 cities** have hosted the contest

**3325 contestants** participated since 1989

Almost **1000 prizes** since 1989 + more than **30 prizes** for this year

The number of participants has increased from 59 in 1989 to 155 this year.

### **What is the European Union Contest for Young Scientists (EUCYS)?**

The Contest was initiated in 1989 when the then European Commission President Jacques Delors took up a challenge from Royal Philips Electronics of the Netherlands to organise a Europe-wide student science fair. Philips had organised a similar event since 1968. The European Union Contest for Young Scientists (EUCYS) was launched with the aim of encouraging young people to get involved in science and eventually embark on a career in research. The contest is part of the Science with and for Society activities managed by the Directorate-General for Research and Innovation of the European Commission.

### **Who can take part?**

The contest is open to all EU Member States, countries associated to the EU research framework programme and invited guest countries that should have a Science and Technology agreement with the EU. To be able to participate, the country should have a national science fair and a national organiser confirmed by their Ministry of Science/Education.

The participants in the EU Contest for Young Scientists are already winners! To enter the contest, participants must have previously won a competition for young scientists at national level. This high standard sets the EU Contest for Young Scientists apart from other similar competitions. Entries from both individuals and small teams of up to three people are allowed, and the students must be aged between 14 and 20. The projects cover all scientific disciplines.

The event is held in a different city every year. At the venue, each participating team is allocated a stand in an exhibition area to display its findings to the jury and other visitors. The jury is made up of leading scientists from both academia and industry. Before the event, the jury carries out a preliminary assessment of all projects submitted. At the event, each team is interviewed by at least five jury members. During these intense interviews, the jury is looking for the following:

- originality and creativity;
- skill and thoroughness in the way the project has been carried out;
- reasoning and clarity in the interpretation of the results;
- top class presentation of the project, both in the written work and during the interviews.

The jury members also take into account how much support a team had from teachers and other mentors.

## The Jury

The jury of the 2019 contest in Brussels is composed of 19 highly qualified scientists and engineers with worldwide reputations in their chosen field and selected from both academia and industry.

The jury carry out their duties at the contest as independent scientific experts and not as representatives of any institution, organisation or country.

**President of the Jury:** **Dr Attila Borics**, *Hungarian Academy of Science, Hungary*

### Members of the Jury

- **Franco Algieri**  
*Webster Vienna University, Austria*
- **Victoria Bloodworth**  
*Siemens Gamesa Renewable Energy, Denmark*
- **Dr Attila Borics**  
*Hungarian Academy of Science, Hungary*
- **Tony Fagan**  
*University College Dublin, Ireland*
- **Mella Frewen**  
*Food Drink Europe, Belgium*
- **Milena Horvat**  
*Institut Jozef Stefan, Slovenia*
- **Hans Langeveld**  
*Biomass Research, the Netherlands*
- **Morten Lennholm**  
*EUROfusion (JET), Culham Science Centre, United Kingdom*
- **Mariya Lyubenova**  
*European Southern Observatory, Munich, Germany*
- **Milan Macek**  
*Charles University, Prague, Czech Republic*
- **Maria Minarova**  
*Slovak University of Technology, Slovakia*
- **Maria Angeles Moro Sanchez**  
*Universidad Complutense Madrid, Spain*
- **Estelle Mossou**  
*Institute Laue-Langevin, France*
- **Margus Niitsoo**  
*Music Education LLC, Tartu, Estonia*
- **Luisa Pereira**  
*Institute of Molecular Pathology and Immunology, University of Porto, Portugal*
- **Zuzanna Szymańska**  
*University of Warsaw, Poland*
- **Lina Tomasella**  
*Astronomical Observatory, Italy*

- **Mira Van Thielen**  
*Ghent University Hospital, Belgium*
- **Anna Zajakina**  
*Latvian Biomedical Research and Study Centre, Latvia*

## The Prizes

### Core Prizes

- *Four first prizes – €7 000 per project*
- *Four second prizes – €5 000 per project*
- *Four third prizes – €3 500 per project*

### Honorary Awards

- *Stockholm International Youth Science Seminar 2019*

Selected winners attend the 2019 Nobel Prize ceremonies, meet the Nobel Laureates and take part in a series of other scientific/cultural activities during the week

- *London International Youth Science Forum 2020*

Selected winners meet young scientists from around the world and take part in the annual two-week intensive summer science festival during July-August 2020

### Special donated Prizes

The following is a list of special donated prizes:

- *JRC (Joint Research Centre): The European Commission's internal science service*  
3 prizes: two-day stays at the JRC's Institutes in Ispra, Italy
- *EIROforum: a one-week stay at each of the eight members of EIROforum*

1. *CERN - The European Laboratory for Particle Physics*

One week stay in Geneva, Switzerland

2. *EUROFusion – JET*

One week stay at Culham, United Kingdom

3. *EMBL - The European Molecular Biology Laboratory*

One week in Heidelberg, Germany

4. *ESO - The European Southern Observatory*

Visit to ESO site in Chile

5. *ESA - The European Space Agency*

Participate at a major European space science conference under the sponsorship of the European Space Agency, including coverage of their travel and accommodation costs.

6. *ESRF - The European Synchrotron Radiation Facility*

One week stay in Grenoble, France

7. *ILL - The Institute Laue-Langevin*

One week stay in Grenoble, France

8. *XFEL - the European X-Ray Free-Electron Laser Facility*

One week stay in Hamburg, Germany

- *Bioeconomy prizes*

1. *The BBI JU Biobased Industries Joint Undertaking prize*

Study trip to Belgium

2. *The European Food and Drink Industry prize*

€2000

3. *The PepsiCo prize*

Visit to its state of the art facilities in the UK

4. *The Unilever prize*

Visit to the Netherlands

- *EuCheMS (The European Chemistry Society) prize*

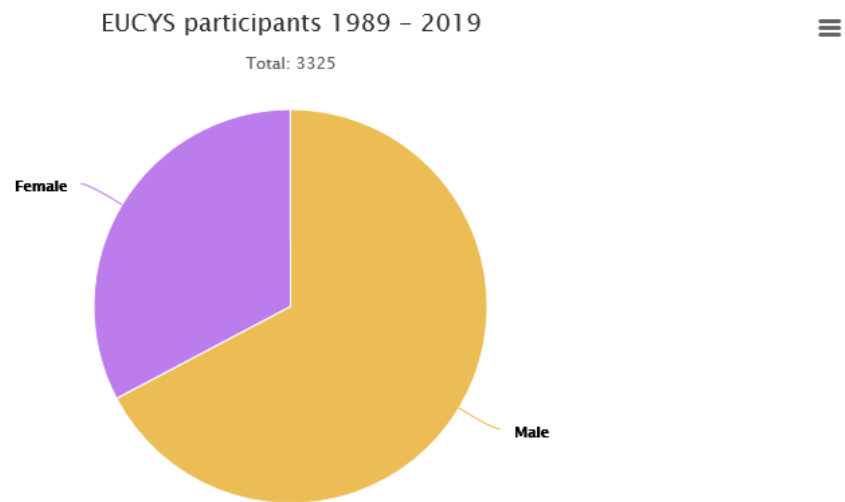
- *Swiss international talent forum prize*  
Visit to the International Science Talent Forum
- *Expo-sciences Luxembourg*  
Visit to the Luxembourg Sciences expo
- *WOLFRAM: licence to Mathematica and WolframAlphaPro*  
One year licence to Mathematica and WolframAlphaPro for Maths (Physics and Computer Science participants)
- *Salveti Foundation Award*  
€ 2,000

### **Host Country awards**

- *Bulgarian Summer Research school*
- *International students of history association award*
- *National workshop on coding theory prize*

## Participation

Participants per year from 1989 to 2019



A total of 46 different countries have taken part in EUCYS since 1989.

Currently, [43 countries](#) have national organisers:

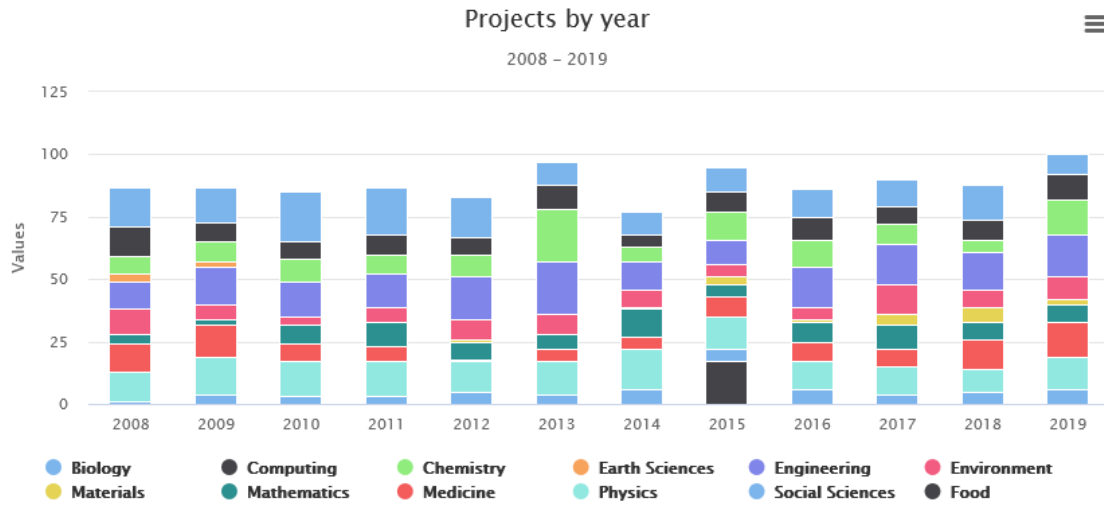
- EU Member States

Austria– Belgium – Bulgaria– Czech Republic– Cyprus –Denmark – Estonia– Finland – France – Germany– Greece – Hungary – Ireland– Italy – Latvia – Lithuania– Luxembourg – Poland – Portugal – Slovakia– Slovenia– Spain– Sweden– United Kingdom

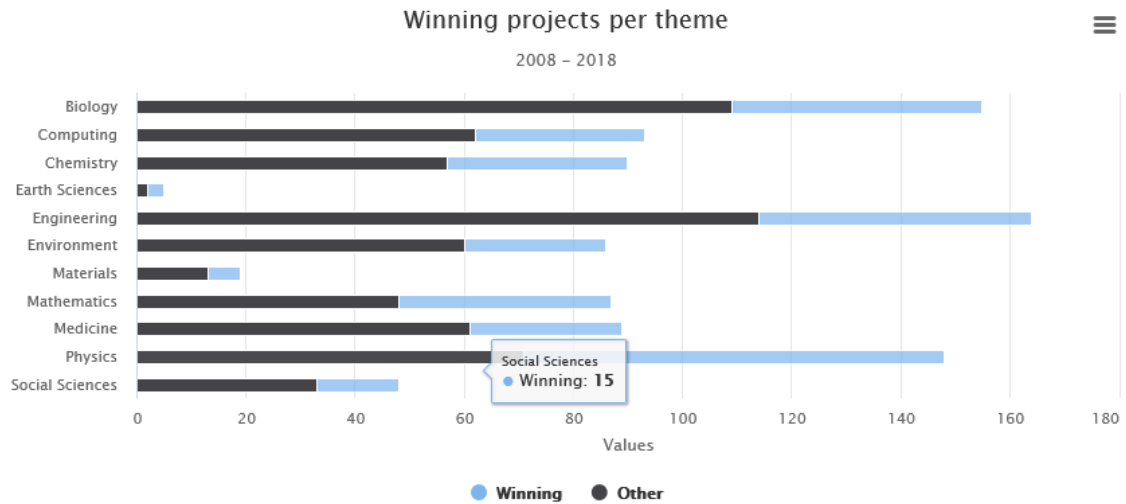
- Associated and third countries

Belarus–Canada – China – Egypt – Georgia – Iceland – Israel – Japan – New Zealand – Norway – Russia –Serbia – South Korea\_–Switzerland –Turkey– Ukraine\_– United States of America\_– European Schools – North Macedonia

## EUCYS and Science



Since 2008<sup>1</sup>, more than 1000 projects have competed and the scientific fields that have the most projects are **Engineering** (175), **Biology** (158), and **Physics** (153).

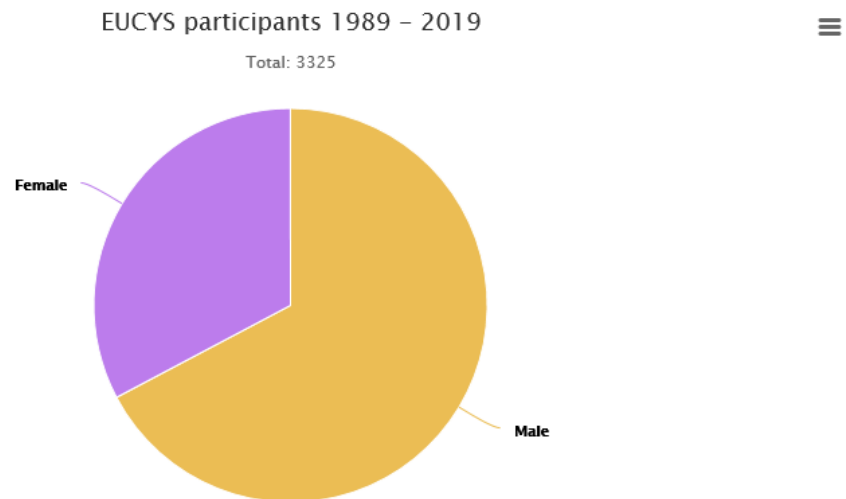


The winning projects also come mainly from these three fields (2008 – 2018).

<sup>1</sup> No data available before



## EUCYS and Gender



The participation of young women was low at the start of the contest but since 1997 it has generally exceeded 30%. This year 43% of the contestants are girls.

More than 350 female participants have won EUCYS prizes over 30 years. In 2018 41% of total winners were female.

In the 2019 edition, 66 young women and 89 young men will be present.

## Where are they now?

Some past contestants, not only the winners, have gone on to set up cutting-edge companies or work at world-class research facilities or universities. All see EUCYS as having been a great opportunity and a real springboard for their career in science.

Here are a few **examples**:

### **Martin Hairer from Austria - won in 1991 a COMETT Award in Zurich (CH)**

**Field** / electronics **Project name** / Electrical circuitry simulation

**Current position** / Professor at the University of Warwick

Winner of the 2014 Fields Medal, the world's foremost maths prize, for his work on random systems. The British Government knighted him in 2019 for his research in mathematics. He is Professor of Mathematics at Imperial College London having previously held professorships at the University of Warwick, in the UK, and NYU. He has developed a theory to accurately characterise random systems that change as time passes, for example the breakdown of a magnetic field as a magnet is heated up. He has won a Consolidator Grant from the European Research Council to refine his theory and work out how it can be applied to different physical systems.

### **Yann Ollivier from France – won in 1996 1<sup>st</sup> prize in Helsinki (SE)**

**Field** / Mathematics/Computing **Project name** / Flexibility of an articulate lattice

**Current position** / Facebook artificial intelligence research lab (FAIR) in Paris

After obtaining his PhD in Mathematics in 2003, he entered the French Center for Scientific Research (CNRS) and worked for several years in various areas of pure mathematics, especially group theory, differential geometry and probability theory.

In 2011, he was awarded the CNRS Bronze Medal, which recognises talented researchers in a particular field. In 2017 he was offered a position at the Facebook Artificial Intelligence Research lab (FAIR) in Paris, where he is currently exploring applications of mathematics to the problem of artificial intelligence. He was also a jury member for several years.

### **Margus Niitsoo from Estonia – won in 2005 Third Prize in Moscow (RU)**

**Field** / Mathematics **Project name** / Generalisations of the Fibonacci sequence

**Current position** / CTO of a small music education startup

While studying for his degrees in mathematics and computer science in University of Tartu, he actively sought ways to also improve his skills in communication, becoming a teaching assistant in university, he still managed to finish his BSc and MSc together in just 3 years instead of the usual 5, which was followed by another 3 years of PhD studies in theoretical cryptography. This briefly made him famous, as he was the youngest person to get a PhD in Estonia at just 24 years of age.

Obsessed with teaching and finding ways to improve it, he was then offered the job of curriculum manager which allowed him to work not only on his own teaching but also to find better ways of organising the curriculum and finding means to support both students and lecturers in their pursuits. He thoroughly enjoyed the work, but felt that he needed to see the world outside the academia as well and so headed for the industry. Currently, Margus is the CTO of a small music education startup that is developing a tool for automatic assessment and feedback of musical performance, which again allows him to combine his twin passions of teaching and computer science. He is also one of the members of the EUCYS 2019 Jury

### **Kristina Aare from Estonia – won in 2009 the European Molecular Biology Laboratory Special Prize in Paris (FR)**

**Field / Environment** **Project name /** Factors influencing the phenol tolerance of soil bacteria *Pseudomonas putida*

#### **Current position / Researcher at the University of Dundee**

She is an avid ubiquitin researcher. She obtained her BSc Biochemistry degree from the University of York followed by MSc Oncology degree from the University of Oxford, where her research interests focused on ubiquitin and ubiquitin-like protein modifications and their role in urological cancers. She is now working on the mechanism and cellular roles of atypical non-lysine ubiquitylation.

### **João Araújo from Portugal – won in 2014 First Prize in Warsaw (PL)**

**Field / Mathematics** **Project name /** A natural characterization of semilattices of rectangular bands and groups of exponent two

#### **Current position / 3 year of mechanical engineering**

Joao has always been in contacts with mathematics. His father (mathematician) puts him in touch with a mathematician from the University of Denver, Colorado, Professor Michael Kinyon to prepare his high school essay. The problem had to be open, so that the work would end up in a new result, and it had to be simple enough for an high school student to solve it. He had to rewrite a paper that had been done by a mathematician in a simpler and clearer way. This paper was published and became his EUCYS project for which he won first prize. João Araújo is currently pursuing a master's degree in Mechanical Engineering in Lisbon.

More examples can be found on the official [EUCYS website](#).