

European Chemistry Gold Medal

Call for nominations



Every two years, the exceptional achievements of one scientist working in the field of chemistry in Europe are rewarded. The winner is awarded the Gold Medal and the opportunity to give the opening lecture at the next EuChemS Chemistry Congress (ECC). The first European Chemistry Gold Medal was awarded to Professor Bernard L. Feringa, Nobel Prize winner for chemistry in 2016. He was awarded the Gold Medal at the 7th EuChemS Chemistry Congress in Liverpool (UK) which took place in August 2018.



Ben Feringa (centre) was awarded the EuChemS chemistry Gold Medal from Herman Overkleeft (left, chair of the EuChemS chemistry Gold Medal committee) and Pilar Goya (right, President of EuChemS) during the 7th EuChemS Chemistry Congress in 2018. © Royal Society of Chemistry.

The call for nominations is open until 30 September 2019⁽¹⁾. Note that the Portuguese Chemical Society (SPQ), with the support of the Portuguese Electrochemical Society (SPE), will organize the **8th EuChemS Chemistry Congress (8ECC)**, to be held in Lisbon, Portugal, **from August 30 to September 3, 2020⁽²⁾.**

(1) www.euchems.eu/wp-content/uploads/2019/03/P-010-European-Chemistry-Gold-medal-ver.2019.pdf

(2) www.euchems2020.org

2019 IUPAC-Zhejiang NHU International Award for Advancements in Green Chemistry

The first four recipients of the recently established IUPAC-Zhejiang NHU International Award for Advancements in Green Chemistry were announced on June 10. The awards will be presented during the closing ceremony of the IUPAC Congress in Paris on Friday, 12 July 2019.

This new collaborative award in Green Chemistry has been established to encourage young and experienced chemists, and to emphasize the importance of advancements in Green Chemistry and the value of sciences to human progress.

The first three prizes are awarded to early career chemists: **Mingxin Liu** from McGill University, Montreal (Canada), "In

recognition of his research in the field of clean redox reactions for aldehyde/alcohol and the application of photosensitizing semiconductors as catalyst for organic transformations"; **Xiaofu Sun** from the Chinese Academy of Sciences, Beijing, "In recognition of his research in the design and development of novel routes for CO₂ electroreduction into value-added chemicals and fuels"; **Julian West** from Rice University, Houston (TX, USA), "In recognition of his research in the design and development of new synthetic transformations using earth abundant element photocatalysts".

The fourth prize is awarded to an experienced chemist: **Fabio Aricò** from the Università Ca' Foscari, Venezia (Italy), "In recognition of his achievements employing dialkyl carbonates in biorefinery development and bio-based platform chemicals via chlorine-free chemistry".

Managed by the International Committee on Green Chemistry for Sustainable Development (ICGCSD), the Award will be presented every two years and the next call will be announced in 2020, in advance of the **2021 IUPAC Congress** to be held in **Montreal, Canada, 13-20 August 2021.**

• <https://iupac.org/awardees-of-the-2019-iupac-zhejiang-nhu-international-award-for-advancements-in-green-chemistry>

Horizon Europe, the next EU research framework programme, and chemistry

On June 7, the European Commission has adopted its proposal for Horizon Europe⁽¹⁾, an ambitious €100 billion research and innovation programme that will succeed Horizon 2020. This proposal, followed by the European Parliament's wish for a €120 billion budget, would make this the biggest research and innovation programme ever in the EU – even if it is still below the requests of most researchers for a €180 billion budget. The launch of Horizon Europe is scheduled for January 1, 2021.

For the European Chemical Society – EuChemS, representing over 150,000 scientists – this proposal sends a strong signal to the negotiators of the next EU budget of the importance of science, research and innovation in the future of Europe. And chemists have a central role to play in helping to provide solutions to the current challenges whether related to health, environment, energy, to feed the world and give access to drinking water...

How will European countries successfully compete with the research and innovation capacity of other countries as the United States or China? How can European science best be supported and encouraged? What role can chemistry play in shaping the EU's next research framework programme Horizon Europe? EuChemS' Science Communication and Policy Officer Alex Schiphorst delves into these questions in a recent article published in Open Access Government⁽²⁾.

(1) https://ec.europa.eu/info/designing-next-research-and-innovation-framework-programme/what-shapes-next-framework-programme_en

(2) www.openaccessgovernment.org/future-of-europe/66524

In July 2019, Paris lives at the pace of chemistry!

Do you know that IUPAC 2019 isn't the only international chemistry event to take place in Paris in July 2019? France also hosts the 51st International Chemistry Olympiad (IChO) from July 21st to July 30th!

International Year of the Periodic Table (IYPT) 2019, IUPAC 2019, IChO 2019: three reasons, if needed, for the French ministry of education and youth to declare this school year "The year of chemistry, from primary school to university" which gathered hundreds of events, contests, exhibitions, shows, lectures, meetings... everywhere in France from September 2018 to September 2019.

The IChO is an annual contest for the world's most talented chemistry students at secondary school level, under twenty years old. Nations from all around the world send a team of four students who are tested on their chemistry knowledge and skills in an individual five-hour laboratory practical exam and an individual five-hour written theoretical exam.

The idea of the International Chemistry Olympiad was developed in the former Czechoslovakia in 1968 and the first edition took place in Prague in June 1968 with only three participants: the organizing country, Poland and Hungary. The event has been held every year since then, with the exception of 1971, and the number of countries involved has steadily increased.

The purpose of the competition is to promote friendship and cooperation among the students,

closer contacts among the young scientific workers, and exchange of pedagogical and scientific experience, as stated in the first regulations of the IChO.

Each participating country must organize a national selection process to determine four students who will attend the IChO. Countries who wish to participate in the IChO must send observers to two consecutive Olympiads before their students can attend the contest.

Paris hosted the 22nd IChO for the first time 29 years ago, in 1990. There were already 28 countries competing then... but it was nothing compared to the 51st edition, for which we expect 318 students and 280 mentors from 80 participating

countries from all over the world and six observing countries: Bangladesh, Egypt, Mali, Oman, Sri Lanka, Trinidad, and Tobago!

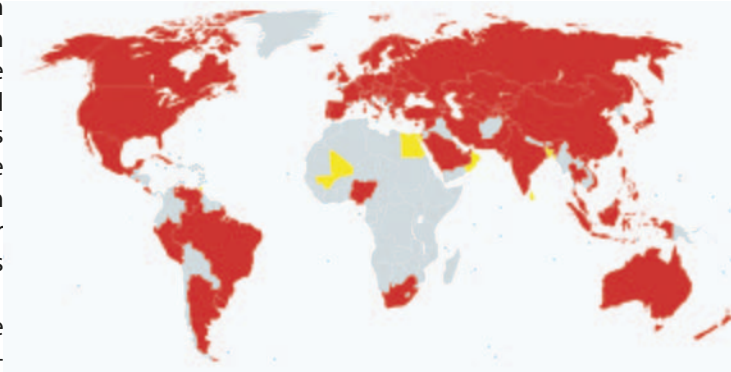
This event is organized by the French ministry of Education and Youth, with the logistic part managed by the "Ligue de l'enseignement", and supported by many partners and sponsors like the French Society of Chemistry. As it was the case in 1990, the practical and the theoretical exams will take place in ENCPB-lycée Pierre-Gilles de Gennes, huge scientific high school in the heart of Paris. However, it also requires the very precious help of numerous volunteers: to accompany the students, to manage and mark their paper, to write the problems, to prepare the labs... In total, more than two hundred volunteers help us making the 51st IChO in Paris definitely unforgettable!

The participants will go home with lots of memories and gifts, including objects created especially for the occasion. The work of Antoine Lavoisier, the French creator of modern chemistry, served indeed as a support for the creation of art objects inspired by the collection of the Museum of Arts and Crafts (MAM, Paris) gathering 500 objects that belonged

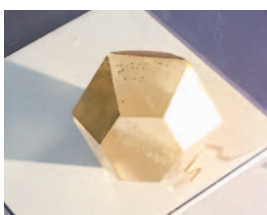
to Lavoisier. Supported by the professional organization representing the chemical companies, France Chimie Ile-de-France, the "**Lavoisier challenge**" brought together students from four art and design schools who freely inspired pieces from this collection to create objects. The four projects selected by a jury of professionals (designers, chemists, education) were produced in series to be offered to participants of the 2019 IChO.

The next IChO will be held in Turkey (52nd IChO, 2020) and Japan (53rd IChO, 2021).

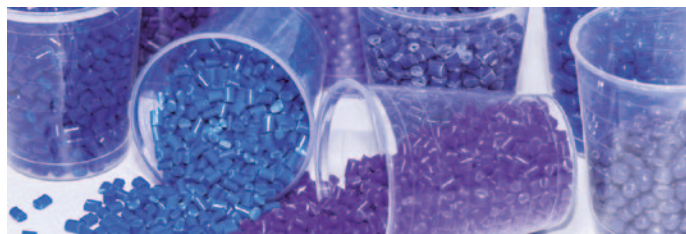
• <https://icho2019.paris/en>



Map of the participating countries (in red) and observing countries (in yellow).



Some of the projects of the "Lavoisier challenge" exhibited last May at the "Palais de la découverte", museum of science in Paris. © France Chimie Ile-de-France.



PlasticsEurope, the association of plastics manufacturers in Europe, held its annual press conference on June 4th 2019.

The numbers showed a global growth downturn for plastic materials in 2018, with an increase of +3.2% showing a slowdown compared to 2017. This trend is expected to continue in 2019.

Since 1990, the global plastic production went from 105 millions of tons to approximately 359 millions of tons in 2018. The average growth rate during those years has been +4.5%. 80% of the plastics produced are thermoplastics (i.e. polymers that can be melted and recast almost indefinitely), such as PE (polyethylene), PP (polypropylene) or PVC (polyvinylchloride).

Asia represents more than half of the world production, with China representing already one third on its own. Its production has grown from 37 Mt to 108 Mt between 2006 and 2018, and this trend is likely to continue, pulled by new units based on coal. In the US, shale gas development helped the return to investment in new polymer units. Its production went from 56 Mt to 65 Mt between 2006 and 2018. This increase is due to new production units based on ethane.

Since 1990, the average European growth rate has been +2.0%. With a decrease of 4.3% in comparison with 2017, the European production suffered from the global downturn, more than other regions. Between 2017 and 2018, production has decreased (-4.3%) but consumption has increased (+0.4%); imports has also increased (+5.2%) versus a decrease of exports (-3.0%). Packaging is the first sector using plastics, mostly for food application. Behind it are construction and automotive industry.

The French production decreased more than the European one (-5.1% for France versus -4.3% for Europe) but the sectors most using plastics are similar to the European ones.

The challenges for the plastic industry

• Industrial challenges

In order to fight against litter and marine wastes, PlasticsEurope launched the *Operation Clean Sweep* (OCS) and the *Global Alliance To End Plastic Waste* with 1.5 billion dollars commitment on five years.

PlasticsEurope highlight the advantages of plastics through the life cycle analysis of plastics and alternative solutions. Plastic bottles vs gourds or plastic bags vs cotton bags are subjects of debate.

• European challenges

With the emerging of numerous national pacts, it becomes more important to contribute to the Circular Plastics Alliance of the European Commission, and to make sure that the national commitments stay coherent with the European Association commitment for 2030. It focuses on increasing re-use and recycling, preventing plastics leakage into the environment, and accelerating resource efficiency.

To reach the recycling and use of recycled plastic goals set by Europe, PlasticsEurope has shown a voluntary commitment through the development of platforms and the promotion of chemical recycling.

In France, the government's goal of 100% of recycled plastics by 2025 is very ambitious. Industries will try to reach it with the development of chemical recycling.

N. Ben Hamouda

Get in your element: IUPAC Periodic Table Challenge

The year 2019 marks the 100th anniversary of IUPAC and also the 150th anniversary of the Periodic Table of the Elements. To celebrate these anniversaries, IUPAC is hosting an online challenge about the Periodic Table aimed at a global audience of young students. The goal is to reach players from every country from January until the end of 2019 (already 110 countries, 44,000 entries and 6,000 certificates in June and still counting!). To play, you will pick your avatar element and test your knowledge with 15 randomly chosen multiple-choice questions about the elements. Do well and advance to the Nobelium Contest for a chance to win a limited edition Periodic Table autographed by a Nobel Laureate in Chemistry! Entries in the Nobelium Contest will be posted on the website and will be eligible for a popular vote in Science, Art, and Education categories.

• <https://iupac.org/100/pt-challenge>

How many chemical elements can you name?

The United Nations proclaimed 2019 the International Year of the Periodic Table of Chemical Elements, honoring the 150th anniversary of Dmitri Mendeleev's iconic creation. Yet many people struggle to recall more than a few of the 118 elements listed on the current table: despite many of these elements are familiar, a survey which comes courtesy of Philadelphia-based Science History Institute* reveals that one in five Americans can't name a single element, and 59% couldn't name more than ten elements. It also drives home a dearth of understanding of rare earth elements: 36% of the 1,263 adults surveyed in February had not heard this term, and 35% had heard it, but had no idea what it meant.

Time for a refresher course?

* Science History Institute is a multifaceted nonprofit organization whose mission is to preserve and celebrate our scientific and technological culture and to make it accessible for investigation and knowledge creation.

• www.sciencehistory.org/sites/default/files/rare-earth-elements-why-they-matter.pdf

On this day in chemistry and Molecule of the week...

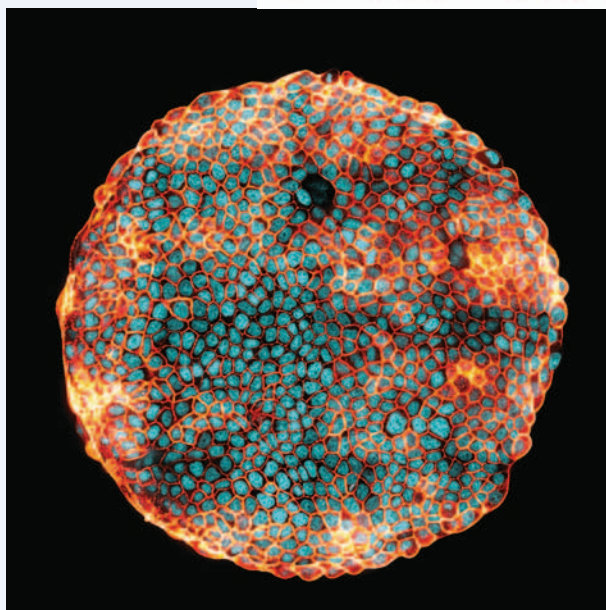
Did you know that the Royal Society of Chemistry offers many useful resources on its website Learn Chemistry, including a calendar that gives the "chemical" information of the day⁽¹⁾?

For its part, the American Chemical Society unveils a new molecule every week on its site since 2001. Many molecules are suggested by the website visitors. Every structure is reviewed by a scientist and displayed in 3-D and flat images with a brief description. Each week's molecule also links to a sample record from the CAS REGISTRY, which is searched using SciFinder®. Each record displays the registry number, index name and synonyms, bibliographic information, and more. All previous molecules are accessible via the archive.

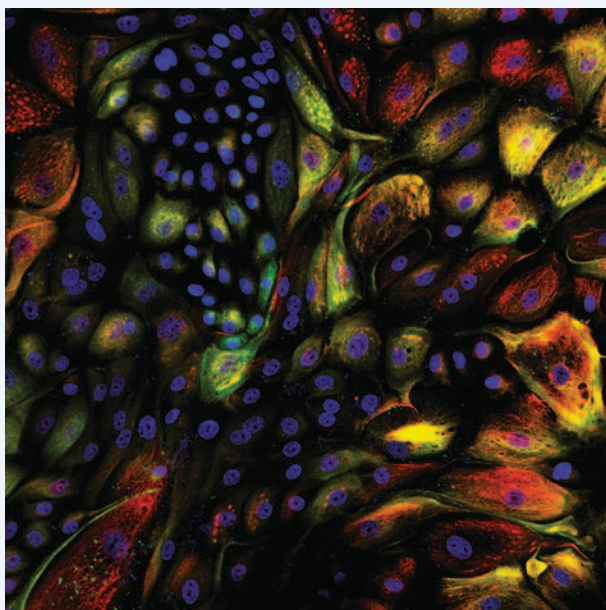
(1) www.rsc.org/learn-chemistry/collections/chemistry-calendar

(2) www.acs.org/content/acs/en/molecule-of-the-week.html

BEAUTIFUL SCIENCE



"Island of cells": epithelial cells in culture. HARMAND Nicolas, doctoral student, PEREIRA David, postdoctoral student, and HENON Sylvie, professor in cellular microrheology (Paris).



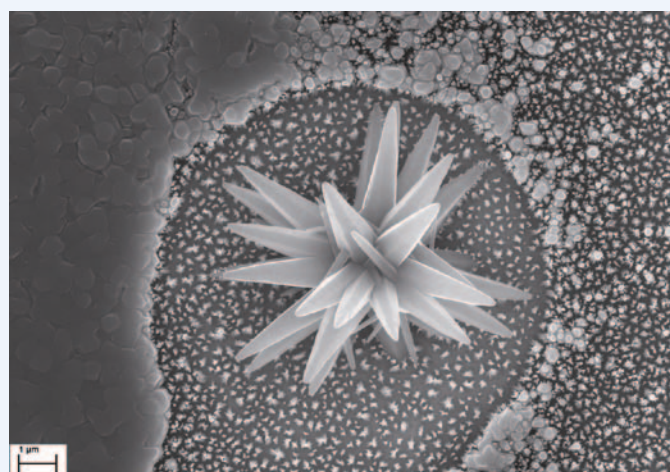
"Cellular hallucination": cells in culture, in green and red marking of two cytoskeletal proteins, in blue visualizing the nuclei of the cells by staining the DNA. BATAILLER Martine, Assistant Engineer in neuroendocrinology (Nouzilly).



"Planet under bell": turbulence on top of a soap bubble. KLEIN Hubert, associate professor (Marseille).



"In the privacy of a border crossing": air bubble that passes through an interface between water and oil. LAGARDE Antoine, doctoral student in fluid mechanism (Paris).



Winning work of the public vote, "Nano-needles in a tiny haystack": zinc oxide nanowires seen by scanning electron microscopy. GAFFURI Pierre, doctoral student (Grenoble).

Show science in its most beautiful and elegant form, from the infinitely small to the infinitely large! This was the theme of the first edition of the Beautiful Science contest organized by the French Physics Society. This images and sounds contest is about sciences in general. Anyone could participate, alone or in groups, and send one or multiple works. The best ones will be exposed in July at the Cité des Congrès of Nantes during the annual conference of the French Physics Society, and published in partners' reviews (as *L'Actualité Chimique!*). Their authors will receive some special prizes given by the sponsors: the Fondation Nanosciences (Nanoscience Foundation), the Association Française de Mécanique (Mechanics' French Association) and the Union des Professeurs de Physique et de Chimie (Physics and Chemistry Professors' Union).

The French Chemical Society is a partner in this event. Each partner could send one representative to vote for the best works. The works sent had to be aesthetic, original, arouse astonishment but mostly present a scientific interest. Four pieces were chosen by the jury, and one was chosen amongst ten by the public on social networks. The winners are five images and belong to the fields of biology, chemistry and physics.

This contest has given to these five people the opportunity to get their work exposed. But it also shared a beautiful image

of science, often considerate inelegant or unattractive. Such contests are the perfect advertisement science need. Over 360 pieces were sent from people between 9 and 87 years old. A lot of scientists and artists/illustrators participated, but also a janitor or a security agent. It shows that it is accessible to everyone, that it is beautiful and full of surprises. Being opened to the public, it gives the chance to a non-scientist community to discover a side of science they never knew.

N. Ben Hamouda

• www.sfpnet.fr/oeuvres-laureates-du-concours-beautiful-science

European Research & Innovation Days

24-26 September 2019

Brussels (Belgium)

European Research and Innovation Days is the first annual policy event of the European Commission, bringing together stakeholders to debate and shape the future research and innovation landscape.

Speakers will include ministers, commissioners, members of European Parliament, researchers, as well as surprise guests each day.

A key challenge for Europe is delivering the next great transition of our economy, society and planet to secure a sustainable future that ensures the wellbeing of citizens. The event will be central to finding research and innovation solutions for this great transition by working across policies, setting the direction, spurring innovation and triggering investment. It will be the moment for all stakeholders to meet and co-create the strategic priorities for the European Commission's investment in research and innovation.

At the same time, the event aims to mobilise EU citizens and increase awareness of how important research and innovation are in addressing the challenges that faces society. It will include a free exhibition, **"Science is Wonderful!"**, to showcase and celebrate the very best EU research and innovation has to offer.

• https://ec.europa.eu/info/research-and-innovation/events/upcoming-events/european-research-and-innovation-days_en

Spirit of chemistry all over the world

At the corner of a street, in a window, in a friend's bag... I still happen to be surprised by an unexpected arrival of a small dose of chemistry, where we did not expect it.

Photos: S. Bléneau-Serdel/SCF.



Barcelona in August 2007, jugs of water in a design store.



Melbourne in August 2016, decorating a shop window at a coffee shop (coffee is a real passion in Australia).



New York in June 2018, Marie Curie's hat in a metro station (thanks to Agathe Philip).



Copenhagen in May 2018, in the window of a famous decorating shop.



Paris in May 2019, street art by artist C215 representing Marie Curie on a wall in a historic district where she and Pierre Curie had their laboratory.



Villejuif (near Paris) in June 2012, artisan market of recycled objects.



Paris in March 2013, jug of water of the city of Paris.

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