

version, recently approved by IUPAC and the InChI Trust and available for download at GitHub (<https://github.com/IUPAC-InChI/InChI/releases>).

The new version can be tested with a web demo version (<https://iupac-inchi.github.io/InChI-Web-Demo/>) which allows users to draw a chemical structure and calculate the InChI; this works in the browser, so no data is shared with external servers.

Extensions to the standard are being defined, as well as applications to mixtures and reactions amongst others. For further details and more information about InChI see www.inchi-trust.org. To stay in touch with future InChI news and releases, do subscribe to the **InChI newsletter**: <https://mailchi.mp/inchi-trust/inchi-news-and-updates>.

Read full release <https://www.inchi-trust.org/iupac-inchi-moves-to-github-to-support-sustainable-chemical-standards-development/>

The International Year of Quantum Science and Technology

On 7 June 2024, the United Nations proclaimed 2025 as the International Year of Quantum Science and Technology (IYQ). According to the proclamation, this year-long, worldwide initiative will “be observed through activities at all levels aimed at increasing public awareness of the importance of quantum science and applications.”



INTERNATIONAL YEAR OF Quantum Science and Technology

The year 2025 was chosen for this International Year as it recognizes 100 years since the initial development of quantum mechanics.

Recognizing the importance of quantum science and the need for wider awareness of its past and future impact, dozens of national scientific societies gathered together to support marking 100 years of quantum mechanics with a U.N.-declared international year. The

timeline of endorsements for this international year also included the International Union of Pure and Applied Physics (IUPAP), the International Union of Pure and Applied Chemistry (IUPAC), the International Union of Crystallography (IUCr), and the International Union of History and Philosophy of Science and Technology (IUHPST).

The U.N. declaration is a signal for any individual, group, school, institution, or government to use 2025 as an opportunity to increase awareness about quantum science and technology. The IYQ Steering Committee is planning global initiatives and events, particularly those that reach audiences unaware of the importance of quantum science and technology. As 2025 approaches, the website quantum2025.org will spotlight events, resources, and activities focused on quantum science.

Looking forward, quantum science and technology will be a key cross-cutting scientific field of the 21st century, having a tremendous impact on critical societal challenges highlighted by the U.N.'s 2030 Sustainable Development Goals, including climate, energy, food safety and security, and clean water. The most important step in finding new insights and new solutions will be inspiring young people, drawn from all over the world, to be the next generation of quantum pioneers who see beyond the surfaces and screens around them and use quantum science to make a positive difference in the lives of others. This International Year is an opportunity for young people—and curious people of any age—to learn more about all the ways quantum science underpins the physical world around us, drives technological innovation, affects government policies, impacts the global economy, and influences art and culture.

“Chemical bonding and reactivity are fundamentally quantum, which is why we at IUPAC are excited to be part of Quantum Science and Technology,” say Javier Garcia Martinez, IUPAC Past President. “This global initiative brings together scientists from many disciplines and offers an incredible opportunity to deepen our understanding of the fundamentals of the molecular sciences and to imagine together the solutions we urgently need to address the most pressing challenges of our time. This is happening as we celebrate the International Decade of Science for Sustainable Development, which provides another unique opportunity for humanity to advance and harness science in the pursuit of sustainable development holistically and collaboratively.”

In the lead up to 2025, any individual, group, organization, institution, or government can help aid the mission of the International Year by facilitating the creation of events or resources that will help others to improve their understanding of the importance and impact of quantum science and technology. Events and resources from around the world will be featured on this site in 2025.

<<https://quantum2025.org/>>

Pure and Applied Chemistry Special Issues—Call for Papers

This year, *Pure and Applied Chemistry* launches a series of themed special issues focused on the IUPAC top ten emerging technologies in chemistry initiative (<https://iupac.org/what-we-do/top-ten/>). A call for the first three issues has been launched. These special issues will celebrate all aspects of chemical smart sensors, of catalysis, and of sustainable polymer chemistry.

Smart sensors and diagnostics

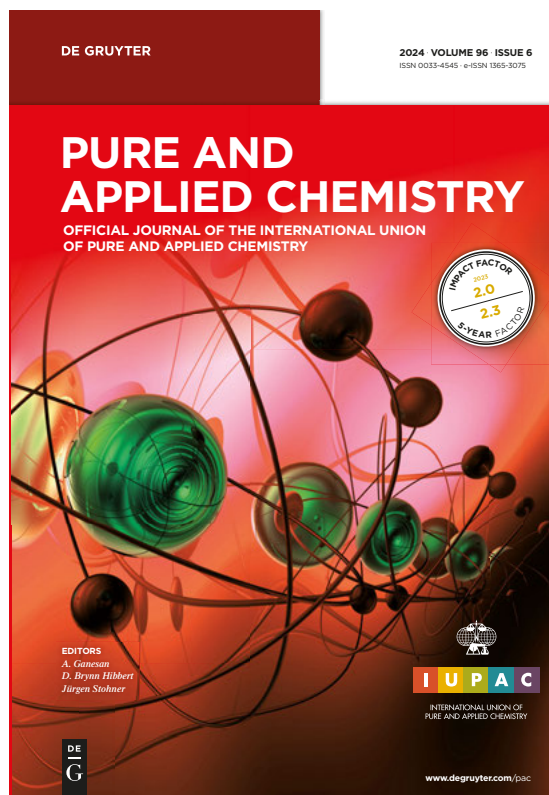
The field of sensors has seen dramatic improvements in recent times. Smart sensors that not only detect an input but then produce an output in response are popular in all areas including the development of rapid diagnostics. The design and application of smart sensors lies squarely within the chemical sciences, as recognised by several IUPAC Top Ten Emerging Technologies awards:

- Wearable sensors 2023
- Film-based fluorescent sensors 2022
- Textile displays 2022
- Chemiluminescence for biological use 2021
- Nanosensors 2020
- Rapid diagnostics for testing 2020

Catalysis from protons to proteins

The ability of external agents that are unconsumed to influence reaction kinetics is fundamental to chemistry. Such catalysts range from the very simplest atom, a proton, to macromolecular enzymes with exquisite efficiency and specificity that are essential to life. Catalysis is well recognised by several IUPAC Top Ten Emerging Technologies awards:

- Chemical synthesis of RNA and DNA 2021
- Semi-synthetic life 2021
- Enantio-Selective Organocatalysis 2019



- Flow Chemistry 2019
- Reversible Deactivation of Radical Polymerization 2019
- Directed Evolution of Selective Enzymes 2019

Sustainable Polymer Technology

Synthetic polymers are everywhere in modern society. This poses a sustainability issue when it comes to their end of life. Increasing efforts are devoted to the recycling or degradation of polymer materials, as recognised by several IUPAC Top Ten Emerging Technologies awards:

- Biological recycling of PET 2023
- Depolymerisation 2023
- Macromonomers for better plastic recycling 2020
- Turning Plastics to Monomers 2019
- Reversible Deactivation of Radical Polymerization 2019

We welcome contributions in the form of original research communications, full research articles and reviews.

For inquiry and submission guidelines, contact PAC editor, Ganesan at a.ganesan@uea.ac.uk