

reimbursement of up to \$2500 to provide an in-person presentation and attend the award presentation ceremony. The awardee is expected to publish a review article on the topic of their lecture in the IUPAC journal *Pure and Applied Chemistry*

Nominations are due by **1 February 2025**

Thanks to Corteva Agriscience for their continuing sponsorship of this award.

Past Awardees:

2023 – **Keith R. Solomon**, University of Guelph, Canada

2019 – **Mark R. Lynch** (posthumously), Department of Agriculture and Food, Ireland

2016 – **Daniel L. Kunkel**, IR-4 Project, Rutgers, NJ, USA

2014 – **Árpád Ambrus**, National Food Chain Safety Office, Budapest, Hungary

2012 – **Lois A. Rossi**, Office of Pesticide Programs, Environmental Protection Agency, Washington, DC, USA

2010 – **Denis J. Hamilton**, Animal and Plant Service, Queensland Department of Primary Industries, Brisbane, Australia

<https://iupac.org/2025-iupac-international-award-for-advances-in-harmonized-approaches-to-crop-protection-chemistry-call-for-nominations/>

2025 IUPAC-Solvay International Award for Young Chemists—Call for applicants

The IUPAC-SOLVAY International Award for Young Chemists is intended to encourage outstanding young research scientists at the beginning of their careers. The awards are given for the most outstanding Ph.D. theses in the general area of the chemical sciences, as described in a short essay. The award is generously sponsored by Solvay.

Each year, IUPAC awards up to five prizes. Each prize consists of a USD \$1000 cash award and up to US\$1000 towards travel expenses to attend the next IUPAC Congress, where the awards will be presented. The Union makes an effort to ensure fair geographic distribution of prizes, in keeping with IUPAC's status as a global organization.

For this round, the awards will be presented at the 2025 IUPAC Congress, to be held in Kuala Lumpur, Malaysia, from 11-18 July 2025. Each awardee will be invited to present a poster on their research and to participate in a plenary award session, and is invited to submit a review article for publication in *Pure and Applied Chemistry*.

Who can enter?

- You must have completed your PhD in the 2024 calendar year, including your defense.
- Your PhD must be from an institution based in an IUPAC member country/territory.
- Your PhD must be in the field of chemical sciences: “chemistry and those disciplines and technologies that make significant use of chemistry.”

All entries are due before **15 February 2025** and can only be **submitted online**.

<https://iupac.org/2025-iupac-solvay-international-award-for-young-chemists-call-for-applicants/>

Navigating New Horizons

As environmental, technological and societal change join forces to disrupt human and planetary health, the world must get better at tracking and responding to a host of emerging challenges, according to a new report from the United Nations Environment Programme (UNEP) and the International Science Council (ISC), released last July.

Navigating New Horizons—A Global Foresight Report on Planetary Health and Human Wellbeing identifies eight critical global shifts that are accelerating the triple planetary crisis of climate change, nature and biodiversity loss, and pollution and waste. The shifts include humanity's degradation of the natural world, the rapid development of technologies such as AI, competition for natural resources, widening inequalities and declining trust in institutions. These shifts are creating a polycrisis, in which global crises are amplifying, accelerating, and synchronizing—with huge implications for human and planetary wellbeing.

Eighteen accompanying signals of change—identified by hundreds of global experts through regional and stakeholder consultations that included youth—offer a deeper glimpse into potential disruptions, both positive and negative, that the world must prepare for.



Signals of change

Key shifts and signals of change outlined in the report include:

- **The demand for critical rare earth elements, minerals, and metals to fuel the transition to net-zero is expected to increase fourfold by 2040**, increasing calls for deep sea mining and even space mining. This poses potential threats to nature and biodiversity, could increase pollution and waste, and spark more conflicts.
- **As permafrost thaws on a warming planet**, ancient organisms that may be pathogenic could be released, resulting in major environmental, animal and human impacts. This phenomenon has already led to an outbreak of anthrax in Siberia.
- **While AI and digital transformation can bring benefits**, there are environmental implications—such as increased demand for critical minerals and rare earth elements and water resources to meet data center demands. The use of AI in weapons systems and military applications, and

the development of synthetic biology, need careful review through an environmental lens.

- **Armed conflict and violence are rising and evolving.** These conflicts result in ecosystem degradation and pollution, leading to repercussions for vulnerable populations.
- **Forced displacement is increasing human health and environmental impacts.** One in every 69 people is now forcibly displaced—nearly double the figures from a decade ago. Conflict and climate change are key drivers.

Adopting foresight

However, the report finds that using foresight tools can help the world to anticipate and prepare for the next emerging challenges and future disruptions.

Peter Gluckman, President of the ISC, said, “Foresight provides a useful set of tools to step outside of short-termism to help identify future opportunities and risks provided that it is done in a truly pluralistic manner, transcending narrow institutional mandates, sectors and other artificial divides that constrain our framing of the problems and the solutions.”

The report recommends adopting a new social contract that engages a diverse range of stakeholders, including indigenous people; giving young people a stronger voice; and rethinking measures of progress to go beyond GDP.

Governments and societies can also introduce shorter term targets and indicators that allow them to be more agile in governance. Ushering in tools and actions to reconfigure financial systems and reroute capital flows—a positive signal of change in the report—could help to reduce inequalities, eradicate extreme poverty and address environmental crises.

Supporting agile and adaptive governance would require better monitoring and assessment of interventions. This includes integrating and improving monitoring on environmental change, and making data and knowledge more accessible.

Just as the impacts of multiple crises are amplifying harm to environmental and human health, the solutions are in sight and actions are underway that would address the global shifts and signals of change identified in the report. Foresight can help to accelerate these actions and spark many more.

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