



WCLM 2025 panelists (from left): David Winkler, Peter Mahaffy, Elizabeth Hall, Dorothy Phillips, Helen Pain, Paul Anastas, and Omar Yaghi.

Restoring Trust in Science: A Global Imperative

report by Neil Gussman

In an era dominated by digital media, artificial intelligence, and information overload, the credibility of science is under unprecedented threat. Eihud Keinan, President of the International Union of Pure and Applied Chemistry (IUPAC), warned that the vulnerability of science has escalated into a global crisis—so severe that it now ranks alongside climate change, public health, and food security as one of the greatest challenges facing humanity.

At the heart of this crisis lies a toxic mix of scientific misconduct, widespread misinformation, and systemic manipulation. From fabricated studies and unethical research practices to the proliferation of over 18,000 predatory journals, the integrity of scientific communication is eroding. Digital platforms amplify this decay, spreading conspiracy theories, pseudoscience, and AI-generated disinformation that distort reality and polarize societies.

The situation is worsened by cyberbullying of researchers, AI-powered bots manipulating public discourse, and the rise of echo chambers that reinforce ideological biases while undermining objective evidence. These dynamics disproportionately affect marginalized communities, further fueling mistrust in science and democratic institutions.

In his talk Keinan called for a collective scientific response—not just to diagnose the threats but to

actively restore public confidence. He urges the scientific community to reaffirm the fundamental human right to participate in and benefit from science, as enshrined in Article 27 of the Universal Declaration of Human Rights (1948).

As seven leading voices in global chemistry gather for the World Chemistry Leadership Meeting (part of IUPAC2025) on July 15, to share insights and propose actions, the message is clear: trust in science is not a given—it must be earned, protected, and promoted. And it begins with transparency, education, ethical rigor, and inclusive access to scientific progress for all.

Can the “Right to Science” Restore Public Trust?

by Dorothy J. Phillips, American Chemical Society, 2025 President

Our world is increasingly shaped by misinformation. Declining trust in science poses a serious challenge. Dorothy J. Phillips, 2025 President of the American Chemical Society, believes that restoring this trust may begin with something long overlooked: the “Right to Science.”

Recognized in Article 27 of the Universal Declaration of Human Rights (1948) and elaborated in Article 15 of the International Covenant on Economic, Social and Cultural Rights (1966), the Right to Science affirms that everyone has the right to access scientific knowledge, education, and the benefits of progress. Yet despite being enshrined in international law for over

seven decades, this right remains largely unknown to the public.

Drawing on her decade of experience with the AAAS Science and Human Rights Coalition, Phillips argues that raising awareness of this right—especially among students—can play a powerful role in rebuilding public confidence. The UN's 2020 General Comment No. 25 provides a framework for implementation, emphasizing not only the protection of scientific freedom but also proactive efforts by governments to ensure access to accurate information and counter disinformation.

This mission is urgent. A 2023 Pew Research Center survey revealed a sharp decline—up to 14 percentage points—in Americans' trust in scientists since the COVID-19 pandemic. Phillips suggests that reversing this trend begins in the classroom. Early science education, inclusive of all demographics, is critical to cultivating a generation that values evidence-based thinking.

The American Chemical Society's recent webinar, *How to Break Through to Reach Science Deniers*, underscores the growing recognition that trust must be earned through outreach, education, and transparency. Phillips' lecture explored whether affirming and communicating the Right to Science can help shift the tide—promoting a more informed, engaged, and scientifically literate public.

Chemistry for a Fairer, Safer, and More Sustainable World

by Helen Pain, Chief Executive, Royal Society of Chemistry

Public trust in science—especially chemistry—is more vital than ever said Helen Pain, Chief Executive of the Royal Society of Chemistry in her talk. She says chemistry lies at the heart of the materials we use, the medicines we depend on, and the solutions we seek for today's challenges. But it's not just the science that matters—it's how society perceives and interacts with it.

Pain emphasized that chemistry must serve the public good. Ethical considerations now shape both research priorities and regulatory frameworks, especially in areas such as sustainability and chemical safety. Chemistry cannot be divorced from the societal values it impacts.

The Royal Society of Chemistry (RSC) is actively ensuring that chemistry contributes meaningfully to the United Nations Sustainable Development Goals (SDGs). This includes advancing ethical standards, influencing chemical policy, and fostering global equity in science. A key part of this mission is expanding

opportunities in the Global South through initiatives like the Pan Africa Chemistry Network and support for early-career researchers.

Inclusivity is another cornerstone of the RSC's vision. From gender and ethnicity to disability and socioeconomic background, the RSC is working to dismantle barriers within the field. By supporting inclusive education and research, they aim to broaden participation and harness the full potential of diverse talent.

Pain's message is clear: chemistry is not just a technical discipline—it's a force for justice, safety, and sustainability. But to fulfill that potential, it must be guided by care, collaboration, and conscience. Through ethical practice and inclusive engagement, chemistry can build a world that is not only more advanced—but also more equitable.

The Future of Science in the Digital Age: Chemistry at a Crossroads

by Omar M. Yaghi, UC Berkeley

In 21st century, science—especially chemistry—stands at a transformative crossroads said Omar M. Yaghi of UC Berkeley in his plenary talk. The rise of digital technologies and artificial intelligence (AI) is unlocking unprecedented opportunities for discovery. Yet, this progress is shadowed by growing vulnerabilities: cyber threats, misinformation, knowledge suppression, and geopolitical tensions.

Prof. Yaghi emphasizes that the scientific enterprise must evolve swiftly to remain relevant. Chemistry, in particular, has the potential to become a fully data-driven and adaptive discipline. AI technologies are already revolutionizing the field—from generative models that design new materials to autonomous laboratories that accelerate experimental work. These innovations offer powerful tools to tackle global challenges in sustainability, energy, and health.

But the path forward demands more than technological capability; it requires ethical clarity and visionary governance. Yaghi warns against prematurely regulating AI in ways that might stifle innovation. Instead, he advocates for a balanced approach—one that safeguards ethical standards while protecting the freedom of scientific inquiry. We must resist fear-driven responses and focus on maximizing the benefits AI can offer to humanity.

Equally important is the democratization of science. Yaghi said that the benefits of scientific progress must be shared equitably across societies. This means ensuring open access to knowledge, fostering global