

TrendsTalk

Women in chemistry: our hopes for the next decade

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To celebrate International Women's Day 2026, we invited the female corresponding authors from our 2025 issues to consider their career paths, reflect on the field as they see it today, and imagine what academia might look like for women 10 years from now.

Each participant was asked the same question: **When you imagine the future of chemistry 10 years from now, what challenge for women do you hope we will look back on as outdated, and why? What could it take to get there?**

Our participants come from a wide range of experiences, career stages, subdisciplines, and geographies, but their responses reflect their common desires for meaningful progress, structural change and understanding, and to excel without limits. Importantly, they showcase a hopeful attitude that the culture can evolve 'with' women by accommodating adjustments that make a chemistry research career genuinely inclusive rather than conditional, for greater participation, retention, and collaboration. Together, their answers point to a future in which the whole chemistry community benefits; such changes have the potential to strengthen global academic communities and promote the expansion and acceleration of scientific progress and discovery for years to come.

**Dr Shilpi Kushwaha**

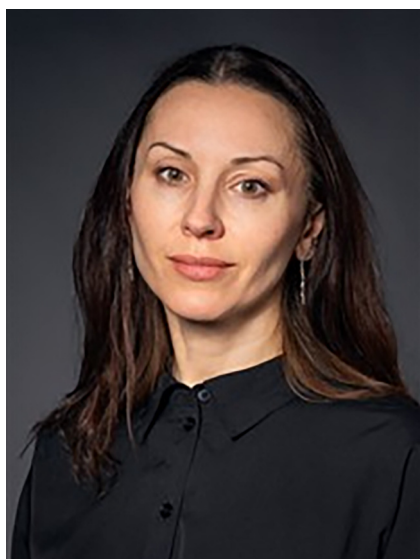
Dr Shilpi Kushwaha is a Senior Scientist and Assistant Professor (AcSIR) at the CSIR–Central Salt and Marine Chemicals Research Institute in Gujarat, India. A former Fulbright Fellow, her research focuses on developing functionalized nano-/microporous self-assembled materials and their sustainable applications such as selective molecular separations, uranium and critical mineral recovery from seawater, environmental remediation, and catalysis, with an emphasis on structure–property relationships and mechanistic insights. She has been recognized as a CSIR Women Achiever in STEM and received the CSIR Young Scientist Award in 2021.

Answer: Ten years from now, I would hope we view the expectation that women must prove resilience and the quiet loss of women from science as an outdated failing, replaced by visible role models nurturing curiosity early. Discovery is shaped as much by circumstance as by ability and opportunity; talent is often constrained not by intellect but by rigid expectations and the unseen labor of balancing many roles.

Dr Shilpi Kushwaha

Science flourishes when every capable mind is encouraged not merely to endure but to belong and to be seen. Reaching such a future will require intentional changes that value mentorship, transparent merits, and allow excellence to coexist with flexibility. Yet progress must also begin earlier—in homes and classrooms where curiosity is celebrated and encouraged as a virtue rather than a deviation, ambitions are voiced without apology, and young girls grow up seeing leadership as a natural extension of their aspirations.

When women are visible, confident, and supported to lead authentically, chemistry gains not only talent but perspective. Empowerment, like discovery, is most powerful when it is shared—and when success is no longer exceptional but expected.



Dr Kira Gerber Astakhova

Dr Kira Gerber Astakhova is an Associate Professor at DTU Chemistry (Denmark); with a PhD in chemistry; serves as President of the Danish Chemical Society; and is the cofounder of several companies, including Aptol Pharma ApS and Dawn Therapeutics Ltd. Research in her group focuses on nucleic acid analogs and DNA/RNA delivery, with an emphasis on blood–brain barrier transport using nucleic acid aptamers and on exploring personalized blood–brain barrier signatures.

Answer: Ten years from now, I hope we will look back on the expectation that women in chemistry must be perfect at everything as an outdated norm. Too often, many women feel pressure to sustain peak performance simultaneously as scientists, leaders, caregivers, and partners, delivering relentless output in every direction. Instead, we should recognize that life and careers unfold in phases, with periods of acceleration, consolidation, and care: the early career stage, building a research group, parenting, recovery, or reflection. Stepping back temporarily should be seen not as a setback but as a normal part of a long, impactful scientific life.

Dr Kira G. Astakhova



Getting there requires structural change, not individual resilience. Evaluation systems must reward quality, mentorship, and leadership; career paths must be flexible; and top management must take explicit responsibility by setting concrete goals, forward planning for gender balance, and ensuring accountability in hiring and promotion. Where leadership commits, progress follows. Some areas of chemistry have already improved significantly, while others still lag behind.

The goal is not special treatment but sustainable excellence and healthier cultures that benefit everyone. By aligning expectations with human realities, chemistry can retain talent, reduce burnout, and build more creative, resilient communities where all scientists thrive.

Dr Mihaela Stuparu

Dr Mihaela Stuparu is currently an Associate Professor and Associate Chair for Undergraduate Students at Nanyang Technological University (NTU), Singapore. In

Dr Mihaela C. Stuparu

terms of research, the Stuparu lab is focused on developing new synthetic routes to curved nanographenes.

Answer: In looking ahead to the next decade, my hope is that we will no longer need special issues that highlight ‘the exceptions’ in the scientific world. Instead, we celebrate scientists in a science world. While 10 years may seem short for such a change, I am hoping we recognize that progress needs all of us, that it’s not ‘us versus them’, but rather a shared journey. We need to understand that when ‘we empower women, we empower men’.



Professor M. Carmen Galan

Professor Carmen Galan

Professor Carmen Galan is a Professor of Organic and Biological Chemistry in the Chemistry Department at the University of Bristol, UK, having begun her independent career in Bristol in 2006. Her internationally recognized research spans from organic and carbohydrate synthesis, catalysis, functional nanomaterials to biological applications in the areas of cancer, antimicrobials, and plant nanobionics. She is the recipient of many prestigious fellowships and awards; most recently, in 2025, she received the ACS Melville L. Wolfrom Award for her scientific contributions in oligosaccharide chemistry and service to the community as well as the 2025 Emil Fischer Carbohydrate Award.

Answer: I think we are going to see a shift from manual experimentation toward more automated, digitized, and sustainable workflows in chemistry, reminiscent of the Industrial Revolution’s transition from handcraft to mechanized production. Just as industrialization freed human labor from repetitive manual tasks and enabled work at an unprecedented scale, these advances will facilitate the democratization of chemistry and will provide access to more sophisticated tools, improved datasets, and methodologies to a wider range of researchers. This would allow chemists to devote time to tackling much more complex global challenges and enhance interactions with scientists from other disciplines.

Times have definitely changed since I started. There has been a welcome cultural shift in the workplace, which has meant more women have entered STEM fields and received much more visibility toward promotions, career opportunities, and awards. However, there is still more to be done to ensure equity. I would like to see more female representation in senior positions. For that to happen, we need support not only from institutions but also from society, where equal support is given for all genders to pursue whichever roles they wish to.



Professor Hoi Ri Moon

Professor Hoi Ri Moon

Professor Hoi Ri Moon is a Professor of Chemistry and Nanoscience at Ewha Womans University and Director of the Institute for Multiscale Matter and Systems (IMMS), a National Research Laboratory supported by the Korean government. Her research focuses on metal–organic frameworks and coordination materials, spanning structure, dynamics, and function across multiple length scales, with applications in energy, catalysis, and sustainable materials. She is particularly

interested in multiscale materials design, phase behavior, and the integration of automated and data-driven approaches in materials chemistry.

Answer: When I imagine the future of chemistry 10 years from now, I hope we will look back on the assumption that women must be highlighted as ‘role models’ as an outdated challenge. The term ‘role model’ is often well-intentioned, but it can place an additional and uneven burden on women, expecting them to be exemplary, representative, and inspirational in ways that are rarely demanded of their male peers. Being repeatedly framed as a role model suggests that success remains something to be explained rather than something expected.

What I hope to see instead is a future where women in chemistry are no longer treated as symbols of progress or special cases, but as scientists with diverse ambitions, leadership styles, and career paths. In such a future, initiatives like this article would themselves feel unnecessary, or even strange, because excellence would no longer need to be categorized or qualified by gender. Achieving this will require structural change: fair evaluation systems, leadership cultures that normalize diversity, and research environments where success does not need to be narrated as an exception. When women no longer need to be role models, it will be a sign that the system itself has truly changed.



Professor Anna M. Papini

Professor Anna Maria Papini

Professor Anna Maria Papini is at the University of Florence as Full Professor of Bioorganic Chemistry, Head of the Interdepartmental Research Unit of Peptide and Protein Chemistry and Biology (PeptLab), Coordinator of the PhD Programme in Chemical Sciences, and Responsible for the International Affairs of the School of Mathematical, Physical, and Natural Sciences. The PeptLab group is working on peptide and protein chemistry, chemical biology, and translational applications, with a strong commitment to making complex peptides accessible through a rational design and efficient synthetic procedures. This includes bioactive and anti-infective peptides, glycopeptides, and antigenic probes.

Answer: When I imagine the future of chemistry 10 years from now, I hope we will look back on the rigid organization of laboratory work as an outdated challenge for women in peptide and protein science. Too often, scientific excellence has been implicitly tied to constant physical presence, long and inflexible hours, and uninterrupted career trajectories—conditions that disproportionately disadvantage women, particularly during phases of caregiving or family responsibility.

In a decade, I hope laboratory environments will be structured around efficiency, planning, and shared responsibility rather than endurance. Advances in automated instrumentation, such as automated peptide synthesizers, purification platforms, and high-throughput analytical tools, already allow experiments to run reliably with less continuous manual supervision. When combined with well-organized laboratory workflows, shared instrumentation, and digital monitoring, these tools can make research more flexible without compromising rigor or productivity.

Getting there will require cultural and institutional change as much as technological progress. Laboratories must adopt team-based models, transparent scheduling, and realistic expectations of availability, while recognizing output and creativity rather than time spent at the bench. By rethinking how laboratories are organized and how work is distributed, peptide and protein chemistry can become a field where women no longer have to choose between scientific leadership and a balanced life, and where talent, not logistics, determines success.

Dr Brittany White-Mathieu

Dr Brittany White-Mathieu joined the University of New Hampshire in 2023 and is an Assistant Professor. Her laboratory is interested in developing fluorescent probes that allow us to visualize cellular membranes during regulated cell death, helping to address major challenges in biology.

Answer: I hope in the future there can be more support and understanding for women who choose to have children during the early stages of their careers. Women often feel that they must choose between a career and having a family because of the nature of our field. There are some programs to support pregnant women and women with children, but it can be difficult to openly disclose that you have children out of fear that others may think you do not take your career seriously. Creating environments that provide more career stability during the early stages will support women with children or those who want to start a family.

This is especially important now that more than one income is typically required for financial stability, meaning that parents and caregivers of children must work to support their family. We also need to actively develop and support positive work environments that promote work-life balance. It is possible to love chemistry and want to have a family! This response of course can apply to all parents and caregivers; I am speaking from my own personal experience as a woman with a young child.

Dr Kate Waldie

Dr Kate Waldie is an Associate Professor at Rutgers University. She began her independent career in 2018, and research in the Waldie group focuses on organo-metallic electrocatalysis for renewable energy conversion and chemical synthesis.

Answer: When I think about the future of chemistry 10 years from now, I hope we will look back on the visibility gap many women scientists experience as a thing of the past. Small differences in whose ideas are noticed or whose research is highlighted can quietly shape careers. Moving forward will take greater awareness and a shared commitment to more consistently recognizing contributions.



Dr Brittany White-Mathieu



Dr Kate Waldie



Dr Megan Roberts

Dr Megan Roberts

Dr Megan Roberts is an Assistant Professor at Western University in Canada, where her team takes inspiration from biological systems and uses intentional chemistry to understand how biopolymers (particularly carbohydrates and proteins) assemble and interact. The ultimate goal is to leverage these patterns and design supramolecular materials with applications in sustainable plastics, vaccine technologies, and drug delivery.

Answer: Ten years from now, I hope we will look back on the quiet expectation that women must simply ‘figure it out’ in chemistry as outdated (i.e., navigating biased systems, uneven caregiving burdens, and unspoken professional norms). Progress should not depend on individual resilience alone.

I hope instead that chemistry becomes a field where support is intentional and structural: where mentorship is not accidental, and where those in positions of power consistently look backward, building rungs into the ladder for those coming up behind them. That means sponsoring women for opportunities, naming bias when it appears, and refusing to excuse dismissive behavior as normal.

It also means evaluating excellence more honestly. Scientific contributions should never be assessed in a vacuum, as though family leave or caregiving simply pauses ambition. Accomplishments achieved alongside these realities deserve recognition not as anomalies but as evidence of extraordinary strength and leadership.

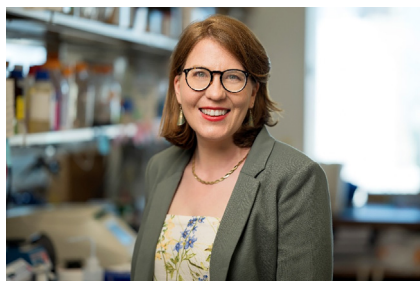
Getting there will require accountable leaders, equitable promotion systems, and workplace cultures that value belonging and balance as foundational. If we succeed, the next generation of chemists will spend less energy fighting to belong and more energy doing what they came here to do: train, discover, create, and lead.



Professor Yael David

Professor Yael David and Dr Anna Knörlein

Professor Yael David's team is part of the Chemical Biology Program at Memorial Sloan Kettering Cancer Center. The laboratory focuses on utilizing chemical biology and biochemistry to understand epigenetic and epitranscriptomic regulation, especially how DNA, RNA, and histone modifications control transcription and drive disease, with the goal of developing new ways to target these pathways for therapy. Anna Knörlein is an SNF and BRIA STARR Postdoctoral Fellow in the David Lab.



Dr Anna Knörlein

Answer: Ten years from now, we hope to look back on the limited visibility of female role models in chemistry as an outdated challenge, particularly the scarcity of women who successfully combine scientific leadership with caregiving and family responsibilities.

Although many women have paved the way through exceptional scientific contributions, dedication, and leadership, they remain under-represented in both academic and industrial leadership. Those who do succeed are often overburdened with service and mentorship expectations, and their voices are still insufficiently amplified in traditionally male-dominated environments.

Meaningful change requires intentional, sustained mentorship from senior scientists of all genders. Mentors who actively support, advocate for, and guide women through pivotal career moments can have a transformative impact. Equally important is long-term institutional support that enables women to balance research excellence with caregiving responsibilities without sacrificing career advancement.

By fostering environments in which women feel valued, supported, and empowered, we can ensure that leadership in chemistry reflects the full diversity of talent in the field. A decade from now, success would mean a discipline where women's contributions and voices are no longer the exception, but an integral and visible part of the norm.

Dr Claire Kammerer

Dr Claire Kammerer is an Associate Professor in Chemistry at Université de Toulouse and CEMES-CNRS, working on the design and synthesis of functional molecules tailored for molecular mechanics or electronics, to be investigated on surfaces by scanning probe microscopy.

Answer: Looking ahead, I hope that in 10 years from now, women in chemistry and more generally in science will not have to make a choice anymore between a successful academic career and parenthood. Currently, too many talented women leave academia at an early stage of their career because they consider it too challenging to reach a work-family balance, especially when getting their first faculty position competes with starting a family.



Dr Claire Kammerer

Professor Isabelle Fournier

Professor Isabelle Fournier is a Distinguished Professor and co-director of PRISM Inserm U1192 at the University of Lille. PRISM is a French NIH lab focusing on health technologies. The lab's research is divided into two main areas: one dedicated to technological innovations (which she also coordinates) and one dedicated to therapeutic innovations. In her area of research, the team develops mass spectrometry-based methodologies and technologies to address precision medicine; specifically developing MALDI MS imaging and MALDI IHC, as well as spatial proteomics, for the past 20 years.

Answer: Firstly, I must say that considerable progress has been made since I was a master's student myself. There are now more women in leadership roles, such as team leaders and lab directors, and women are more likely to be appointed to professorial positions. However, the number of women in professorial positions is still imbalanced, and there are even fewer of them in strategic positions in academia, such as directors of institutes, departments or even universities. This is particularly evident in the field of medical applications, which is still largely dominated by men. Although there are more opportunities for women to reach senior positions, it is also true that women often feel they are less capable than their male colleagues. Thus, to achieve real equality, it is also important to change the way children are educated and make women aware from a very early age that they can be as good as men and pursue careers involving high levels of responsibility and success. Showcasing successful



Professor Isabelle Fournier

women would probably be an important part of this. Role models can help women to identify with them and encourage them to be at the forefront.

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