

Spotlight on IUPAC Italian Young Observers

by Brian Li *, Matteo Guidotti *, Paola Albanese, Francesca Cardano, Luca Consentino, Sara Fulignati, Tommaso Giovannini, Roberto Nisticò, Emilia Paone, Giacomo Trapasso

The IUPAC Young Observer Programme strives to introduce the work of IUPAC to a new generation of distinguished researchers and provide them with opportunities to address international science policy issues. For many Young Observers, the up-coming IUPAC General Assembly will be the first opportunity to meet each other and also meet IUPAC members. To get an early start on this unique encounter, Brian Li, a IUPAC Young Observer from UK, initiated a round of interviews with several YOs from Italy. In this article, you will read an introduction by Matteo Guidotti about Italian National Commission for IUPAC and the YO Programme, followed by interviews with eight Italian YOs about their research interests, knowledge of IUPAC, and career advice for young chemists.

Matteo Guidotti: Italy has been an active member of IUPAC since its founding in 1919. For decades, the country's chemical scientific community has been represented within IUPAC by the National Research Council (CNR), Italy's largest public research agency. In 2013, the CNR established the Italian National Commission for IUPAC, which consists of seven members selected from key sectors of chemistry, with active representation from academia, governmental institutions and the industrial sector. The Italian National Adhering Organization (NAO), in collaboration with the Italian Chemical Society (SCI), the main national chemistry association, promotes the submission of scientific projects and organizes events under the IUPAC banner. These efforts aim to foster stronger synergies with experts from other member countries and encourage the development of new collaborations among scientists with diverse disciplinary backgrounds. In this capacity, the Commission has consistently supported well-established IUPAC initiatives, such as the Gold Book update project and the annual Global Women's Breakfast, while also contributing to new activities, such as translating the official IUPAC Periodic Table into Italian (2024-009-2-200). Additionally, the Commission disseminates the annual IUPAC Top 10 Emerging Technologies across the national scientific community.

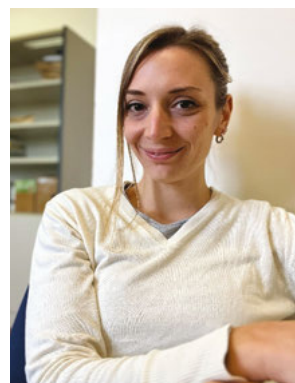
Supporting high-level educational programmes for young chemists and researchers has always been a priority for the Italian National Adhering Organization

(NAO). The Commission not only has promoted the organization of IUPAC international summer schools on Green and Sustainable Chemistry, but also encourages Italian participation in IUPAC Young Observer Programme (<https://www.iupac.cnr.it/young-observers>). Since 2009, the presence of Italian members in the programme has steadily increased. Every two years, the Italian Commission selects a team of 10 talented young scientists. These candidates are carefully chosen based not only on their scientific achievements, but also on their ability to proactively contribute to a larger scientific community. They then receive official endorsement to participate in IUPAC activities as Italian Young Observers. Serving as an IUPAC Young Observer can be a valid starting point for a successful career within the Union. For example, Pierangelo Metrangolo, who was an Italian YO with Division I (Physical and Biophysical Chemistry) in 2009, went on to serve as President of the same division in 2022–2023 and currently is Task Chair of two successful IUPAC projects (2024-006-3-100; 2016-001-2-300). Looking ahead, the Commission aims to expand its support for the most promising young Italian chemists. This will involve not only formal endorsement and facilitation for international networking opportunities but also enhanced financial support to enable in-presence participation of a broader number of YOs in IUPAC's key events worldwide.

Brian Li (BL): Tell us about yourself, your hometown/ country, where you go to school/work, your current role, etc.) and if this is your first time as a Young Observer. Are you involved in young chemists' network at the moment?

Paola Albanese: I was born in Bari, in southern Italy, where I completed my studies in Industrial Biotechnologies.

I developed a strong interest in the chemistry of biological systems, which led me to pursue a PhD in Chemical Sciences at the Department of Chemistry of the University of Bari. During this time, I dedicated four years to the development of cell-mimicking structures—referred to as *Synthetic Cells*—which convert light energy into chemical energy to fuel internal metabolic processes. After completing my PhD, I moved to the University of Siena, where I am currently working



Francesca Cardano,
University of Turin



Roberto Nisticò,
University of
Milano-Bicocc



Giacomo Trapasso,
Ca' Foscari University
of Venice



Sara Fulignati
University of Pisa



Paola Albanese,
University of Siena



Tommaso Giovannini,
University of Rome Tor Vergata



Emilia Paone,
Mediterranea University of
Reggio Calabria,



Luca Consentino,
University of Palermo

as a Research Scientist in Physical Chemistry, focusing on the development of stimuli-responsive *Synthetic Cells*. Having built my experience in a multidisciplinary research field, I find it especially stimulating to be part of scientific communities that foster dialogue, collaboration, and the dissemination of chemistry in all its forms—such as IUPAC does. This is why I am highly motivated to take on the role of Young Observer for the first time, with an active and constructive spirit, and to make the most of this opportunity. I am also involved in the Young Group of the Italian Chemical Society, and I am a member of the Royal Society of Chemistry. I am also involved in the IUPAC Division VI (Chemistry and the Environment) Young Observer Board, which promotes the active participation of young members in division activities.

Francesca Cardano:

I have had the opportunity to start my first experience as Italian IUPAC Young Observer in 2024. I hold my studies in Italy where I graduated in Medicinal Chemistry and Pharmaceutical Technologies to then start a PhD in Chemistry with a curriculum on Nanobiotechnologies at the University



of Genova in affiliation with the Italian Institute of Technology. I spent one year of my PhD abroad at the University of Miami. After two postdoctoral experiences I am currently a research fellow at the University of Turin. I plan to grow as a researcher and as a teacher to transfer with enthusiasm organic chemistry related topics to students. I am deeply involved in the Public Engagement activities of the Chemistry Department at the University of Turin, especially together with Cluster Health within the Dipartimento di Eccellenza activities.

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Luca Consentino:

I am originally from Palermo, Italy. I am pursuing my PhD in Chemical Sciences at the University of Palermo, in collaboration with the Institute for the Study of Nanostructured Materials (CNR-ISMN). I actively participate in national and international scientific meetings and communities dedicated to young researchers in chemistry. My current research focuses on catalytic materials for sustainable chemistry. This is my first time participating as a Young Observer at IUPAC, and I am truly honoured and excited for this opportunity.



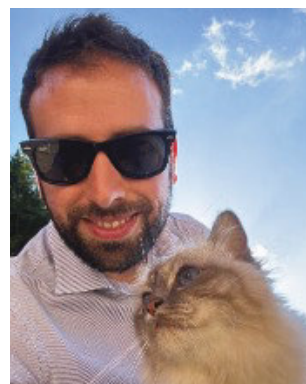
Sara Fulignati:

I come from Pisa (Italy), where I live with my husband and my son. I defended my PhD thesis in Industrial Chemistry with honors in March 2019 at the Department of Chemistry and Industrial Chemistry, University of Pisa, and then I served for four years as a Post-doctoral Researcher at the same Department. In May 2023, I became a Junior Researcher in Industrial Chemistry, and starting from March 2025, I am a Tenure Track Researcher at the same Department. I work on the development of sustainable catalytic processes for the synthesis of added-value products starting from wastes. In 2024, I was selected as Italian Young Observer for the first time.



Tommaso Giovannini: I was born in 1991 in a wonderful valley in Tuscany, between Arezzo and Florence, called Casentino, where I lived until I moved to Pisa to study at the Scuola Normale Superiore (SNS). As an SNS student, I completed both my Bachelor's and Master's degrees in Chemistry at the University of Pisa, where I graduated in 2015 in Physical Chemistry. The same year, I began my PhD in "Methods and Models for Molecular Sciences" at SNS, where I earned my doctorate in January 2019. I then spent two years in Norway as a Postdoc at the Norwegian University of Science and Technology in Trondheim. Then, in February

2021, I returned to SNS as a Junior Assistant Professor, and most recently, in June 2024, I moved to Rome to join the University of Rome Tor Vergata. 2024 also marked my first time as an IUPAC Young Observer! I am also a member of International Younger Chemists Network.



Roberto Nisticò:

I graduated in Industrial Chemistry at the University of Torino (Dept. of Chemistry, Torino, Italy, my hometown) in 2011, where I also got my PhD in Chemical and Materials Sciences in 2015. Since the beginning of 2015 I was Post-Doctoral Fellow at the same University in Physical Chemistry, whereas in 2017 I moved toward the Polytechnic Institute of Torino (Dept. of Applied Science and Technology, Torino, Italy) working as Fixed-Time Researcher (RTD-a) in Materials Science and Engineering. In 2019 I decided to leave Academia, moving to the Private Industry field, working firstly as Researcher for the Bio-ON SpA Company (CNS Unit, Castel S. Pietro Terme, Italy), and subsequently as GMP QC Analyst for the PolyCrystalLine SpA Company (Medicina, Italy). Since February 2022, I came back to Academia, working as Fixed-Time Tenure-track Associate Professor (RTD-b) at the University of Milano-Bicocca (Dept. of Materials Science, Milano, Italy), where I am currently serving as Associate Professor in General and Inorganic Chemistry. I am member of the Italian Chemical Society (SCI), and this was my first time as IUPAC Young Observer.



Emilia Paone: I was born and based in Reggio Calabria (in the south of Italy), where chemistry meets sunshine and sea views. I am currently a Fixed-Term Researcher (RTD-B) at Mediterranean University of Reggio Calabria, working in the field of heterogeneous catalysis, with particular emphasis on the sustainable valorization of waste and residues for the green production of high

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value-added chemicals. I am and have been actively involved in various networks: I served as a Board Member of the Young Group of the Italian Chemical Society (SCI) and was also part of the European Young Chemists' Network (EYCN). Actually, I am Board member of the Division of Industrial

Chemistry of SCI, where I serve as secretary. In short, I love working in teams where science meets community. This is my first time as a Young Observer, and I am incredibly excited to join the IUPAC community!



Giacomo Trapasso:

I was born in Venice, Italy and I conducted my PhD at the Ca' Foscari University of Venice in collaboration with the Institute on Membrane Technology (ITM-CNR), the Green Chemistry Centre of Excellence in York (UK) and the University of Bath (UK). In Venice I am currently working as

a postdoctoral fellow, focusing on the green synthesis of bio-based compounds, materials and solvents from biomass. I am currently involved in the initiatives sponsored by the Italian Chemical Society (SCI) such as conferences and summer schools, specifically those of the interdivisional group of Green and Sustainable Chemistry. This is my first time as a Young Observer, and I can't wait to participate to my first IUPAC General Assembly in Kuala Lumpur in July!



BL: *How did you develop your interest in Chemistry and what do you know about IUPAC?*

Paola: My interest in chemistry came unexpectedly. In school I found chemistry difficult and couldn't really grasp its practical relevance, whereas biology seemed to offer a more immediate understanding of the world around me. When I started my university studies in biotechnology, I explored cell biology in detail. I was fascinated by the processes taking place within such a

tiny, yet incredibly complex and organized, entity. That fascination gradually turned into a deep curiosity—and eventually a need—to understand how such biochemical processes were even possible. That's where chemistry came in. It gave me the tools to understand how bonds form and break, why a molecule is stable or rapidly degrades, why biological structures spontaneously assemble into specific three-dimensional shapes, what are enzymatic kinetics and how they work, why active sites are so selective, how a membrane channel opens, etc. All these answers—and many more—came to me through chemistry. I first knew IUPAC for developing the chemical nomenclature used worldwide. Subsequently I realised that IUPAC has made further incredible work for ensuring that chemists around the world speak a common scientific language e.g. aligning general terminology, measurements standard, atomic weight and similar. I found out that IUPAC is responsible for approving the insertion of new chemical elements in the periodic table, including the symbol and name decision (and also that there are many incredible stories behind this subject!). In general, it promotes chemistry globally by supporting projects, education, meetings, international collaboration, and the advancement of chemistry to address global challenges such as sustainability, health, and the environment.

Francesca: My curiosity toward scientific disciplines aroused since I was a kid being particularly interested in performing experiments in general, during my high school degree the chemistry laboratory, in particular, took my attention. This IUPAC YO experience is improving my knowledge about IUPAC as an international federation of national units going beyond the IUPAC role on Nomenclature and Periodic Table knowledge I mastered in the years, especially I am learning and appreciating the involvement of IUPAC to spread chemistry worldwide overcoming divisions and providing a common chemistry knowledge.

Luca: My passion for chemistry developed during my undergraduate studies, where I was fascinated by the role of chemistry in addressing environmental and energy-related challenges. Over time, this passion has grown even stronger, as I increasingly recognize the fundamental role that science plays in sharing knowledge and fostering global collaboration—removing social, cultural, political, and gender barriers. IUPAC, for me, represents the cornerstone of global chemistry, promoting standardization, innovation, and collaboration across disciplines and nations. I have always admired its mission to advance chemical sciences for the benefit of humanity.

Sara: My interest in Chemistry began when I was a child because I was fascinated by the idea that everything around us is subject to change, more or less visible, thus I started studying Chemistry and learning about how substances interact and react. I found that Chemistry is like solving a puzzle where every piece has a reason and my interest in Chemistry increased. Thus, during my studies and research, I learned about IUPAC, at the beginning for the nomenclature issue and then as an international organization within which it is possible to meet and collaborate with other people around the world with the same interests and passions as me.

Tommaso: My interest in chemistry began about a year before I started university, when I chanced upon the textbook *General Chemistry* by Paolo Silvestroni, which I then realized was a classic in many Italian chemists' libraries. I was fascinated by how chemistry can rationalize the properties of matter through simple

equations and rules, bringing together physics and mathematics (my other two passions). This naturally led me to specialize in physical chemistry, and later to focus on theoretical and computational chemistry. Every chemist is familiar with IUPAC as the international authority responsible for naming new elements and standardizing the chemical language. The experience as a IUPAC Young Observer is giving me the unique opportunity to discover how the organization works, its structure, its projects, and its impact on the global chemistry community.

Roberto: I started being fascinated by science since childhood. Probably this interest in wildlife and the infinitely small can be due to the numerous documentaries seen on television together with my grandfather. During high school I finally discovered Chemistry: the central science able to connect and explain everything that surrounds us (and even more). From that moment, I decided that I wanted to be a Chemist! Moreover, if we consider also that precisely among the laboratory benches during my University studies I also found love (and my current wife!), every time I think about Chemistry I cannot do it without a sincere smile! Regarding IUPAC, of course, the first time I came across to IUPAC was during the University courses. In general, the IUPAC

is largely known for its regulatory activity, whose primary purpose is to find a common language necessary for regulating the Chemistry nomenclature. Since my selection as IUPAC YO, I realized that this is merely the tip of the iceberg. "There's plenty of room at the bottom", to quote the famous lesson by the American Physicist Richard Feynman.

Emilia: My interest in chemistry began when I realized it had the extraordinary power to transform anything, turning the ordinary into something new, better and even magical. It can turn waste into wealth, and I was fas-

cinated by the mission to give discarded materials a new, long, and sustainable life, challenging the idea that "everything that has a beginning must also have an end." Since then, I have been captivated by the power of catalysis and the endless possibilities of sustainable innovation. As for IUPAC, I see it as a true "chemical compass",

guiding us in naming, understanding, and communicating chemistry, while fostering global connection, inclusivity and collaboration among curious minds across the world.

Giacomo: When I was little, I went to the cinema to watch *Harry Potter and the Philosopher's Stone* and I became fascinated by the story of this ancient alchemist which was able to make this legendary substance which could transform any metal into pure gold. Despite learning afterwards that this substance does not exist (so far), I understood that chemistry could be a useful tool to transform matter by rearranging atoms in the chemical structure and this was even more magical than any movie. I firstly came across IUPAC during my bachelor as I was struggling to learn how to properly name each chemical structure. As I progressed in my studies, I found out that IUPAC also promotes research, outreach activities and international cooperation by financing conferences, schools and projects.

BL: *What is your current and future career goal, and what aspect of your research/work are you most excited about?*

Paola: In the near future, I aspire to continue my academic career, aiming to strike a balance between

I found that Chemistry is like solving a puzzle where every piece has a reason and my interest in Chemistry increased.

-Sara Fulignati

research, teaching, and active participation in professional networks, including organizations or scientific societies. Throughout my academic journey, I have specialized in the design and engineering of cell-mimetic structures, *Synthetic Cells* (SCs), that can be tailored to perform a wide range of functions. One of the most exciting aspects of SCs is versatility: these systems can offer smart and innovative solutions to challenges across various fields. For instance, I used SC engineering to develop drug carriers with controllable cargo-release (10.3390/pharmaceutics14122777), to encapsulate enzymatic networks and observe compartmentalized chemical oscillations (10.1016/j.xcrp.2024.102367), or create light-powered multi-compartment SCs capable of complex biochemical reactions with spatial segregation of functions (10.1073/pnas.2012170118). Moving forward, I plan to focus on exploring new research lines currently being launched in our lab. These include catalysis on SC

membranes, the development of SCs that entrap and degrade persistent pollutants and the assembly of CO₂-fixing SCs through bio-inspired pathways that do not occur in nature.

Francesca: Currently, I am planning to consolidate my experience as a researcher, as a supervisor and as a teacher in organic chemistry to become in the near future an independent researcher and grow a small research group. My research interests are focused on the synthesis and photophysical studies of small molecules as photochromic or fluorescent compounds for applications in chemical biology and within the biomedical fields. I am particularly interested in the application of molecular photoswitches in controlling drug activity (10.1039/C9DT02092F) or in imaging purposes (10.1039/C8CC09482A). Additionally, I am curious about many fluorescent tools for imaging (10.1002/ejoc.202200833; 10.1016/j.dyepig.2021.109644) and theragnostic outcomes including the study of unconventional peptide nucleic acids investigating them from the synthetic and applicational viewpoints.

Luca: One of my main career goals is to continue working in scientific research after completing my PhD, building upon the work I am currently carrying out. I aspire to contribute to the field of sustainable catalysis by developing innovative materials and processes that can accelerate the green energy transition and mitigate environmental impacts. My current research focuses on the design and synthesis of nanostructured catalysts for key applications such as NO_x conversion, CO₂

valorization, hydrogen production, and synthetic natural gas (SNG) generation. I am particularly excited by the potential of nanostructured catalysts to unlock new reactivity patterns, enhance process selectivity, and significantly lower the environmental footprint of industrial chemistry. Among my recent contributions, I have studied hydrogen production via steam reforming of ethanol and dry reforming of methane with CO₂ (10.3390/molecules29112575), and

investigated supported Ni-based catalysts for methane production from CO₂ (10.1016/j.jcou.2025.103076). These studies aim to provide efficient, scalable, and sustainable catalytic systems that could find application in future energy and chemical production processes.

Sara: My research focuses on the catalytic valorisation of waste biomasses and their derivatives from the perspective of Green Chemistry. I investigate the synthesis of industrially relevant platform chemicals from both model and real feedstocks, also including the application of innovative heating systems like microwave reactors (10.1016/j.apcatb.2017.01.056; 10.3390/catal12101189). My work also encompasses the conversion of these platform chemicals into renewable monomers (10.1002/cssc.202200241; 10.1016/j.jiec.2021.04.057), biofuels (10.1016/j.cattod.2023.114054; 10.1039/c8nj03569e), and chemicals (10.1016/j.cattod.2023.114288; 10.3390/molecules29010126). Additionally, I explore the fractionation of various waste biomasses aiming to valorise each component into value-added compounds and materials that can be used as soil amendments and as

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adsorbents for pollutants, according to the circular economy principles (10.1021/acssuschemeng.4c05508; 10.1016/j.wasman.2023.06.012). Therefore, the main goal of my work is to contribute to the transition from a fossil-based economy to a sustainable economy based on renewable raw materials, particularly waste. What excites me most about my research is the opportunity to actively contribute to the creation of a more sustainable, cleaner, and safer world in which future generations can grow.

Tommaso: I am a theoretical and computational chemist, passionate about modeling complex chemical systems with relevance in various fields, from sustainable chemistry to nanophotonics. The systems I study are generally characterized by molecular compounds interacting with an external environment (10.1063/5.0216596) from molecular solutions (10.1039/C9CS00464E; 10.1039/d2cc07079k) to nanostructured substrates (10.1021/acs.jpcclett.4c03591), such as nanoparticles (10.1021/acsp Photonics.2c00761) and low-dimensional materials (10.1021/acs.jpcclett.0c02051). What excites me the most about my research field is how theoretical and computational chemistry is evolving toward a more realistic description of complex systems and phenomena, bridging the gap between theory and experiment, not only to rationalize experimental findings, but also with predictive power to address real-world challenges.

Roberto: At present, I have two primary interests that are absorbing my current research activity, which is always at the interface between Inorganic Chemistry, Materials Science, and Nanotechnology. The first one is an old friend of mine I've been dealing with since the beginning of my Post-Doctoral career: the study of magnetic properties of Fe-based nanomaterials, and their technological exploitation, especially in the field of the environmental remediation. Currently, I started investigating the synthesis of magnetic ferrite systems, focusing on the important role played by the chemical (doping) elements in terms of magnetic response and crystal structure (10.1016/j.jallcom.2024.173628), as well as new synthetic routes to obtain anisotropic morphologies (10.1016/j.colsurfa.2024.135117) and new recycling protocols (10.1002/cssc.202401698). The

second topic I am currently facing with is the development of advanced catalysts for the energy field, with the final aim of finding a technological solution able to favour the achievement of the energetic independence. In particular, I am focusing my interest on the synthesis of inorganic catalysts (mainly metal oxides) for the electrochemical reactions of hydrogen evolution (HER), oxygen evolution (OER) (10.1039/D5IM00008D) and more specifically the reduction of CO₂ into valuable chemicals and renewable fuels (CO₂RR). I started exploring the properties of Cu oxides (Cu₂O and CuO) for the catalytic conversion of CO₂, and the role played by the different morphologies in driving toward a specific chemical product. Personally, I found this field of research extremely appealing and strategic, especially if we consider the possibility of recovery and storage CO₂

from our atmosphere and convert it into valuable chemicals. This approach guarantees a double beneficial effect for the environment, as we can both reduce the consumption of traditional fossil fuels and re-convert the exhausted CO₂ again into usable chemicals.

*It is chemistry that wants
to change the world, one
reaction at a time.*

-Emilia Paone

Emilia: My current research focuses on heterogeneous catalysis for the sustainable valorization of waste and residues, from agro-industrial leftovers, plastic wastes to spent batteries, into valuable chemicals and intermediates (10.1039/C6CY01626J; 10.1021/acssuschemeng.8b01593; 10.1016/j.mcat.2020.111228; 10.3390/su13052428; 10.1021/acssuschemeng.1c08008; 10.1039/D0CS00041H). I am especially excited by the idea of combining circular economy principles with cutting-edge materials science. It is chemistry that wants to change the world, one reaction at a time. In the future, I aim to become a professor and continue driving forward applied research in green chemistry, hopefully continuing to be part of some inspiring network teams and inspiring a new generation of scientists who think sustainability is not a trend, but a duty. It is chemistry that makes molecules, and minds, cleaner.

Giacomo: At present, my goal is to research for easy and greener synthetic procedures for the upgrading of biomass wastes with potential upscaling capacities, thus creating a bridge between university and industry.

I hope that the acquired skills as a researcher will be useful for my future career either in academia or in industry. What I find exciting about my work is the freedom of practically apply your ideas and theories for the development of your own project. In the case of green chemistry, what could be initially considered as a waste such as biomass residues, can be converted into a useful material or molecule with countless applications. In addition, the possibility of travelling around the world participating to international conferences and sharing ideas with the scientific community is one of the best parts of this profession. My research focuses on the conversion of biomass into valuable compounds which can be employed to produce more complex molecules and materials. For the longest time, I concentrate my attention on the green synthesis of furanic compounds such as 5-hydroxymethyl furfural (HMF) (10.1021/acs.oprd.2c00196) 2,5-furandicarboxylic acid (FDCA) (10.1039/D1GC04408G; 10.3390/catal13071114) and their derivatives (10.1002/ejoc.202400134; 10.1002/adsu.202200297) starting from sugars. During my PhD I also worked on new green synthetic procedures for the production of novel organic carbonates and their applications as green media for polymeric membranes preparation (10.1016/j.scp.2022.100639; 10.1021/acssuschemeng.2c06578) in collaboration with the Institute on Membrane Technology (ITM-CNR) in Italy.

BL: *What IUPAC Divisions / Committees / Projects are of interest to you and why?*

Paola: I am currently participating in Division VI (Chemistry and the Environment) and Division I (Physical and Biophysical Chemistry) meetings. I recently started to participate in the activity of the project entitled *Advanced Technologies for Carbon Sequestration and Capture* (2023-023-1-600) chaired by Diane Purchase. I would be enthusiastic about continuing my involvement with IUPAC, contributing actively to its initiatives. I am particularly interested in developing my own project for example it could be aimed at assessing the limits and the benefits potentially associated with the replacement of industrial microorganisms with engineered SCs.

Francesca: I am particularly interested in Division III (Organic and Biomolecular Chemistry) and Division VII (Chemistry and Human Health) which match my research interests with the purpose to cooperate for novel chemistry outputs toward a worldwide synergistic approach. Committee on Chemical Research Applied to World Needs (CHEMRAWN) and Committee on

Chemistry Education (CCE) complete my interests in the IUPAC scenario due to the willingness to apply research development for improving universally people quality of life by means of new technological and scientific discoveries, extending chemistry education to the next generations of citizens applying a uniform and equal learning approach worldwide.

Luca: I am particularly interested in Division II (Inorganic Chemistry) and Division VI (Chemistry and the Environment), as they align closely with my research fields and future goals. Division VI plays a crucial role at this time of global transition, where sustainable and responsible chemical practices are more important than ever. Moreover, I am keen to observe the activities of the Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD) and Committee on Chemistry and Industry (COCI). I believe these committees are essential for promoting sustainable practices and encouraging innovation that connects academic research with industrial applications.

Sara: Based on my research interest, I am involved in the YOs group of Division VI (Chemistry and the Environment) because its work on carbon sequestration, removal of pollutants and the characterization of humic substances. Moreover, since I have always worked in the field of Green Chemistry and the development of sustainable processes, I am interested in the Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD).

Tommaso: My research activity has focused on the theoretical and computational study of complex systems and nanostructured materials, and finds a natural fit at the intersection of Division I (Physical and Biophysical Chemistry) and Division II (Inorganic Chemistry), as well as the related projects. Also, I am currently the principal investigator of a research unit within a national Italian project devoted to water remediation, which aligns with the goals of Division VI (Chemistry and the Environment) and Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD). As a theoretical and computational chemist, I also strongly feel the need to contribute to the Committee on Publications and Cheminformatics Data Standards (CPCDS) and related projects, because I believe in the importance of making scientific outputs more accessible, interoperable, and reusable by the community. Finally, I have always been passionate about chemistry education and outreach, and I would be glad to contribute to the Committee on Chemistry Education (CCE)

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and related projects. Over the years, I have organized internships for high school students and given informative talks in local high schools, aiming to inspire the next generation of scientists.

Roberto: Among the IUPAC Divisions I think that the Division II (Inorganic Chemistry) is the most interesting one, mainly because I found an existing synergy between this Division and my personal interests, related to the development of inorganic (nano)materials for the environment and the sustainable catalytic production of energy. Committee on Chemical Research Applied to World Needs (CHEMRAWN) would be interesting for me to discuss with other Colleagues on current issues, anticipating future problems of chemical interest, with the final aim of finding practical solutions that can improve our daily live.

Emilia: I am especially fascinated in Division VI (Chemistry and the Environment), this aligns perfectly with my research on sustainable catalysis and the valorization of waste materials. I am particularly drawn to interdisciplinary efforts that address environmental challenges through innovative chemistry.

As an active member of young chemists' communities, I am also interested in International Younger Chemists' Network (IYCN) as I strongly believe in the power of youth as a driving force for the future of science. Supporting early-career researchers, promoting inclusivity, and creating opportunities for young scientists to grow and connect globally are priorities I deeply care about. These initiatives reflect both my scientific mission and my personal values: collaboration, sustainability, and empowering the next generation of chemists.

Giacomo: During my studies, I concentrated mainly on the application of the green chemistry principles for the development of sustainable organic syntheses. For this reason, I believe that participating as a Young Observer to Division III (Organic and Biomolecular Chemistry) and to Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD) and Committee on Chemistry and Industry (COCI), which base their activities in organic and green chemistry, will constitute an ideal occasion to exploit this opportunity. Particularly, observing closely the work of these committees will allow me to be updated with the new advancements in the sector while at the same time understand the structure and the activities of this group of scientists and researchers. I am also interested in some IUPAC projects: *Green Chemistry impact toward*

2050 Green Deal in Chemistry and Sustainability (2022-017-3-041); *Assessment of the Contribution of IUPAC Projects to the Achievement of the United Nations Sustainable Development Goals* (2020-011-2-041); *Metrics for Green Syntheses* (2017-030-2-041).

BL: *Where can we see you in the next few months, are you going to any conferences, any poster or talk, or any volunteer work you are involved in?*

Paola: In the coming months, I plan to attend the Physical Chemistry Annual Meeting of the Italian Chemical Society, possibly presenting either a talk or a poster. Another area I would be eager to explore is the participation of women in chemistry PhD programs and academia more broadly, examining the current global landscape and identifying strategies to foster more inclusive and equitable scientific environments.

Francesca: Unfortunately, I will not have the chance to join the 2025 Congress in person, but I will be happy to learn about this experience from the Italian YOs who will participate thanks to the exchanging network we are building together in these months.

Luca: This year has started with my participation at the 3rd Greenering Conference at Khalifa University in Abu Dhabi, UAE, where I presented an oral talk related to part of my PhD research project. In the near future, I will also present a work on CO₂ valorization at the International Conference on Environmental Catalysis (ICEC 2025). I will have the pleasure to present another oral talk at IUPAC 2025, where I am excited to finally meet IUPAC members and experience the IUPAC community in person.

Sara: In the month of June, I will have the opportunity to participate in the International Conference on Environmental Catalysis (ICEC2025). I will present an oral contribution entitled "*Development of an innovative biorefinery process by the one-pot fractionation of defatted cardoon*".

Tommaso: Over the next few months, I will be attending several conferences. I will attend World Conference on Gold 2025, followed, by NanoSeries2025 Conference and Triennial Congress of the World Association of Theoretical and Computational Chemists (WATOC). I will attend the workshop Open Quantum Systems in Chemical Systems during IUPAC 2025, and International Conference on Metamaterials, Photonic Crystals and Plasmonics (META 2025).

Roberto: This year I have already participated as invited speaker to the Scientific Symposium connected to the PhD Winter School *Green Chemical Synthesis for Circular Economy* with a talk titled “*Green pores: How to shape porosity in nanomaterials in a sustainable way*”. In the next few months, I will not attend any conferences, since I have to dedicate this period to research activities connected to the end steps of two funding projects where I am involved in. However, some planned dissemination activities will involve other members of my research team. In particular, there will be two scheduled contributions expected during the International Conference on Environmental Catalysis (ICEC2025), both dedicated to our recent efforts in the design of advanced catalysts for the energy field.

Emilia: I am truly excited to attend IUPAC 2025 to present my work, exchange ideas with colleagues from all over the world, and be inspired by the vibrant international chemistry community. It will be a great opportunity to grow both scientifically and personally. I can't wait for it to happen!

Giacomo: I am participating to the XVII International Postgraduate Summer School on Green Chemistry with a lecture about the usage of green metrics in organic synthesis. Shortly after I am attending the IUPAC 2025 to present an oral communication about some of the latest findings in my research and will become my first event as a Young Observer. I am looking forward to it!

BL: *Can you share one piece of career-related advice with other young chemists?*

Paola: In my experience—particularly in Italy—I've noticed that many chemists tend to focus exclusively on the specific area to which their research belongs. There is often a general resistance to embracing interdisciplinary approaches, largely due to cultural legacies and the communication challenges that arise between different scientific ‘languages’. My advice to young chemists entering the world of research is to stay open-minded and nurture curiosity—even for subjects seemingly distant from their own work. Inspiration can come from a casual conversation with colleagues next door, or just one floor above. Often, we don't even know what our neighbors are working on! Engaging in dialogue with scientists from fields or divisions other than our own, especially within a scientific society, can be incredibly enriching. Not every exchange of ideas will lead to immediate progress in one's own research, but it can help shape a mindset towards finding creative

and original solutions, ultimately fostering scientific innovation and advancement.

Francesca: To be always curious to understand and learn something new and to keep your passion as the first motivation to lead your daily activities.

Luca: Stay curious, embrace interdisciplinary approaches, and never underestimate the value of building an international network. Chemistry is a collaborative science, and learning from diverse perspectives can open up unexpected and rewarding opportunities.

Sara: The advice I can give to young chemists is to never stop being curious about the world around us, not to be discouraged by the failures that research inevitably brings, but rather to see them as starting points for achieving new discoveries.

Tommaso: One of the most important pieces of advice I can share is to find great mentors who truly value and support you. Since my undergraduate studies, I have been fortunate to have outstanding mentors who have made me grow scientifically and personally, by working on my weaknesses and building on my strengths. At the same time, I believe it is essential to travel, attend conferences, and meet other scientists. Building a network, exchanging ideas, and putting your research into a broader context (scientific, societal, or even philosophical) can be a valuable source of growth and inspire your future work.

Roberto: Personally, I believe that there are only two career's approaches that will help young Chemists to survive to the *jungle* that surrounds us, namely: either being extremely specialized (like koalas and pandas) or being invasive (or better *pervasive*, like mice and rats). My recommendation is trying to be as much pervasive as they can, trying to be multidisciplinary and open mind, especially toward new fields of research and emerging topics.

Emilia: This is the kind of question I truly love, because I have always admired those who took the time to share something inspiring with me. So here's mine: Believe in your ideas, even when they seem too ambitious, especially then. Surround yourself with mentors and colleagues who both challenge and support you, and who, over time, you can proudly call friends. Science is a team effort, and collaboration is often the key to both innovation and personal and professional success. Be curious, it is your most powerful tool, and

Spotlight on IUPAC Italian Young Observers

the only one that never runs out. Be resilient, because there will be obstacles, failures, rejections, and unexpected turns, but when success comes, you'll enjoy it even more. And whatever you do, have fun! Passion and joy are fuel. Being a chemist is one of the most beautiful things and it is truly wonderful to smile while changing the world.

Giacomo: Even if I do not feel to have gathered enough experience to be able to give life-changing advice, what really improved my approach toward research and boosted my desire to learn and discover new things, was the mentor/supervisor choice. Therefore, what I feel telling my other young colleagues which are starting their journey into research (maybe with a PhD), is to focus their attention on the mentors and research group they are willing to work with, rather than the specific topic they are researching. I believe that a healthy work environment and passionate supervisors and colleagues is one of the most important parts for your future career. I wish you all the best!

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Spotlight on IUPAC Young Observers—Call for input

Last year, Daniel (Dan) Reddy initiated a series shining the spotlight on recent IUPAC Young Observers (YOs); the first two were Silvina Di Pietro and Tien Thuy Quach (*Chem Int.* Oct 2024, p.6-7; <https://doi.org/10.1515/ci-2024-0402>). Through the spotlight article, Silvi and Tien were able to share the impact of serving as an IUPAC YO, as well as IUPAC initiatives about which they are interested and passionate. In the next issue, two other YOs from Italy, Fabiana Piscitelli and Elisa Carignani will reflect on their experience.

In each piece, the YOs are invited to respond to the following four prompts:

1) Tell us about yourself (e.g., Your hometown/country, where you go to school/work, your current role, etc.) and if this is your first time as a Young Observer.

2) Describe some of your favorite/transformational/valuable experiences in your role as a YO at the IUPAC World Chemistry Congress/General Assembly (GA).

3) How will you use these experience(s) as you progress, and how might you advise/encourage individuals who are hoping to serve as YOs and/or become involved within the broader chemical community, especially IUPAC? and

4) If you had a couple hours each week to contribute to IUPAC, to which project (already initiated or not yet started), would you contribute these hours?

Young Observers are invited to share their experience. Stay tune for other YOs stories!



Feature Articles Wanted

Contact the editor for more information at [<edit.ci@iupac.org>](mailto:edit.ci@iupac.org).