CHEMISTRY in Europe
Newsletter for European Chemistry, published by EuChemS

Issue 2021 –3

EDITORIAL

Challenges towards a sustainable future


In general, it is a real challenge to write the Editorial.
When belonging to a family, you are obligated to contribute, share responsibilities, and enjoy common benefits.
Professional Networks (PN) are valuable members of the EuChemS family, doing their best in their respective fields. But, is our best good enough? Also, what can be expected in the near future? There are many uncertainties, but we see quite a bright future for Chemistry.
One of the reasons for a bright future is that the European Commission has recently presented its plan to reduce CO2 emissions with the aim to stop climate change. If we start from the general belief that "Chemistry is responsible for most of the pollution", one could think that Chemistry does not have a future in this new world. But the contrary is true! The EC's plan includes various points and if accepted, it will influence our daily life substantially. The plan is very careful in maintaining our high standard of living in Europe, but it is also designed to motivate us to save resources and to urge industry to introduce new technologies. Maybe we do not realise it immediately, but the majority of these new technologies involve Chemistry. Also, an informal query of EuChemS' PNs regarding the most important challenges of the respective fields extended our general view and contributed to our vision of a sustainable future and sustainable chemistry. Let's take a quick look at what the PNs envision!
Design, synthesis, and characterization of new substances with interesting and useful properties should be a good base for development of many subdisciplines of Chemistry. To be in line with a circular economy and generate less waste, we need greener approaches in selection and development of new methodologies, using appropriate reagents, instruments, and to save energy as much as possible. We need new materials for production and storage of renewable energies. We need a healthier world. That's why the development of processes that minimise the release of CO2 and those that avoid the use of fossil fuels as feed stock by replacing them with new materials is important. On the other side, by pressing environmental problems, such as microplastics, use of glyphosate, abatement, and measurements of emerging pollutants, we have a mission to recover our planet and preserve the biosphere with its natural sources of water and living world. This is a challenging future for Chemistry, right? An important observation we made from the responses was that these challenges wash away the borders between traditional subfields of chemistry. The major challenge is therefore to work accross borders of (sub) disciplines and meet this way the expectations and needs of our societies.
The next months (or years) will show how the EC's plan will survive the complicated process of acceptance: hopefully the goals will not need to be compromised too much when considering the interest of all parties. However, we can be very optimistic that these plans will boost most subfields of Chemistry and chemical research and innovation will be a mjor, if not the largest contributor of these development.

Slavica Ražić
Chair of EuChemS Division of Analytical Chemistry and member of the EuChemS Executive Board

Péter G. Szalay
Chair of EuChemS Division of Computational and Theoretical Chemistry and member of the EuChemS Executive Board

FOCUS

EuChemS Calls for nominations

Currently, four (4) EuChemS Calls are open for nominations:

- 2021 EuChemS Lecture Award
- 2021 EuChemS Award for Service
- 2021 EuChemS Historical Landmarks Award
- 2021 Members of the International Award Committee for European Chemistry Gold Medal (IACM)

You are kindly invited to send nominations through the online form until 31 December, 18:00 CET.

Mark your calendar!

EuChemS is pleased to invite you to its upcoming webinars:

- Good Chemistry – Do Chemists Need Ethics?
  7 October 2021 (from 10:00 to 11:30 CEST)
- The Lithium Element – Enabler of the Energy Transition
  1 December 2021 (from 10:00 to 16:30 CET)

EuChemS Secretariat

POLICY

MSCA on the Horizon (Europe)

As the EU is still binding up its wounds from the COVID-19 crisis, it is also stepping into Horizon Europe, the EU's new R&I funding programme. As one of the programme's first pillar clusters, the Marie Skłodowska-Curie Actions (MSCA) will play a key role in implementing its ambition to help Europe operate a smooth green and digital transition.

Key priorities and changes

The COVID-19 crisis has shed light on the EU's R&I system shortcomings and pointed out how much its future relies on interdisciplinary and global approach as well as on younger generations. These are the major areas the new MSCA work programme will commit to address by optimising its €6.6 billion allocated budget through its 5 main intervention areas over the Horizon Europe seven-year period.

Then, in response to the numerous submitted proposals under Horizon 2020, MSCA is now seeking to reduce the number of applicants while boosting success rates with upgraded criteria as well as with a simplified structure and application procedure.

MSCA also gives particular focus to inclusion, gender equality and optimised work and life balance with updated part-time work arrangement and increased allowances. In doing so, the programme strives to carry out and upgrade its H2020 41% of female fellows record.

Bird's eye view

"Long-term investment" in early career researchers and doctoral students expected to lay down the foundations for a resilient Europe will be one of the programme's core principles. Its international and inter-sectoral approach will also aim to intensify third country participation and to address the R&I gap across Europe.

The Doctoral Network (DN) and Post-Doctoral Fellowship (PF) calls will prioritise young researchers and PhD holders' competence diversification and development within and outside academia with emphasised international and academia-business exposure. The industrial DN and the PF additional placement in a non-academic organisation option will aim to boost cross-country brain circulation as well.

ERA fellowship, COFUND and NCP calls will pursue the same objective by fostering synergies with other EU programmes both within and outside Horizon Europe (e.g. Erasmus+ or EEA).

Green is the new black

The programme's Green Charter encourages greener practices (e.g. environment-friendly project material) throughout the entire project planning, building, and completing process and will include a mandatory "green charter implementation" report submission.

The possibility for PF projects to cover Euratom related topics will also act as an incentive for utilising clean hydrogen, renewable energy and low-carbon actions.

Looking out to the Horizon

To be looked forward to at present are the programme's Doctoral Network, Post-Doctoral Fellowship, Staff Exchanges, and COFUND call for 2022 as well as the upcoming European Researchers' Night on 24 September. Two conferences under the Slovenian and French presidency are also on the MSCA events list.

Read more on MSCA's Horizon Europe work programme here.

Maxine Boi
EuChemS Erasmus+ Trainee

Laura Jousset
EuChemS Science Communication & Policy Officer

Sources:

- Horizon Europe Work Programme 2021-2022, 2. Marie Skłodowska-Curie Actions

NextGenerationEU: how research and science will make it real

If you live in Brussels or follow the EU institutions on social networks, it is very likely that you saw one of the European Commission's banners for NextGenerationEU (NGEU). Implemented in July 2020 to operate temporarily from 2021 – 2023, it aims to consolidate the EU's economic structure after the COVID-19 crisis. It represents €750 billion allocated to member states in the areas of single market (€10.6 billion), cohesion (€721.9 billion), and natural resources (€17.5 billion). It is also tied to the regular 2021–2027 budget of Horizon Europe.

A multidisciplinary plan to build a resilient Europe

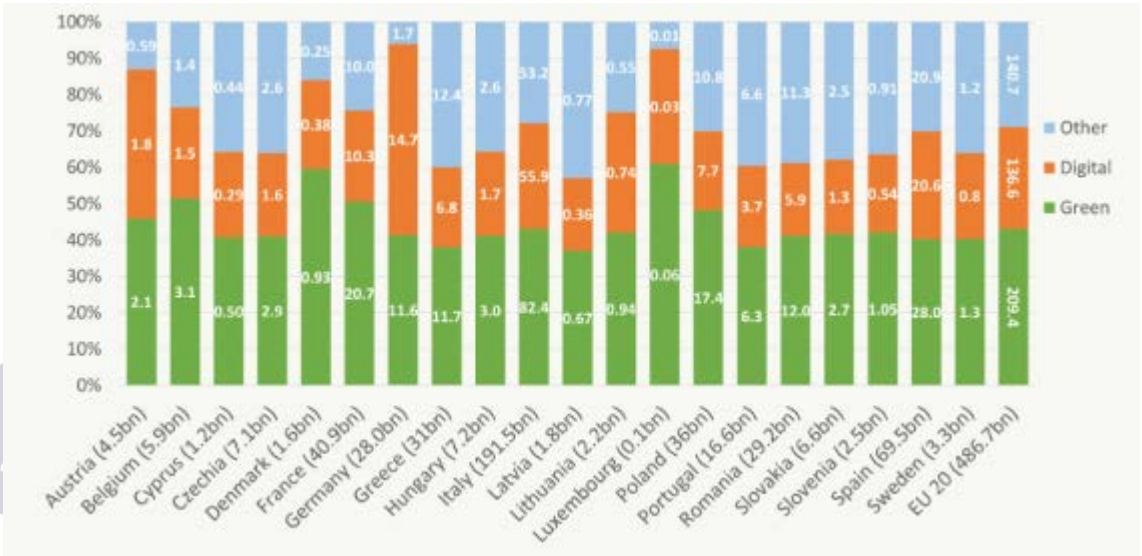
The NGEU recovery package has been designed along multidisciplinary lines. In total, 5 leitmotivs have been underlined to shape NGEU, with a strong emphasis on science, research, and innovation:

- Make it Green: Through supporting Horizon Europe and the Green Deal
- Make it Digital: Through supporting InvestEU
- Make it Healthy: Through supporting EU4Health
- Make it Strong: Through supporting the Recovery Assistance for Cohesion and the Territories of Europe (ReactEU)
- Make it Equal: Through supporting RescEU

Furthermore, EU projects supported by NGEU have already been implemented, such as REFHYNE – a hydrogen research related project funded by Horizon 2020, Hydrogen Europe, and Hydrogen Europe Research.

Modernising EU policies and facilities

The Recovery and Resilience Facility (RRF) is the largest instrument of NGEU. Each member state has submitted their recovery and facility plans in April 2021. Budget allocation between countries has been divided as follows:



Source: https://bit.ly/2TBtgDb

The European Commission defined seven flagship areas that guide the investments of member states among NGEU:

- Power-up (clean technologies and renewables)
- Renovate (energy efficiency of buildings)
- Recharge and refuel (sustainable transport and charging stations)
- Connect (roll-out of rapid broadband services)
- Scale-up (data cloud capacities and sustainable processors)
- Reskill and Upskill (education and training to support digital skills)
- Modernise (digitalization of public administration)

Research is also present within the RRF plan through climate action and resilience: research infrastructures, circular economy projects, cooperation with enterprises and academia, as well as innovation clusters between private businesses being encouraged by the RRF.

Investing in Youth for a better future

NGEU's objectives are similar to the ones stated in the guidelines of Child Guarantee and Youth Guarantee: fostering digital skills, upskilling, reskilling, creating integration programmes for the unemployed, implementing policies to bridge the generational gap, and opportunities for children to access school with a healthy environment.

In addition, €5.3 billion investment in action, with an EU added value, are invested in the programme EU4Health. The domains targeted are the following:

- Improve and foster health in the union
- Protect people in the Union from serious cross-border threats to health
- Improve medicinal products, medical devices, and crisis relevant product
- Strengthen health systems

The NGEU plan has been envisioned beyond the COVID-19 crisis: to prepare the EU to address and face any unforeseen crisis in the future: "the next generation will be resilient". Nevertheless, as we engaged in the second part of 2021, new COVID-19 challenges arose. It was created as a temporary tool, therefore, tracking the evolution of this plan is a necessity to further advance it: time will tell.

Timothée Jourdain
EuChemS Erasmus+ Trainee

Laura Jousset
EuChemS Science Communication & Policy Officer

5

2021-3

CHEMISTRY in Europe
Newsletter for European Chemistry, published by EuChemS

RESEARCH

Insects as Novel Food in the European Union – Assessing their Safety

On 1 June 2021, the European Commission authorised the placing of dried yellow mealworms on the European Union (EU) market, following the positive vote of the Standing Committee on Plants, Animals, Food and Feed (PAFF Committee) on the respective draft legal act. The approval was based on an earlier scientific opinion by the European Food Safety Authority (EFSA), the competent body for the safety assessment of Novel Foods in the EU.

Novel Foods are "foods or ingredients that have not been used for human consumption to a significant degree in the EU before 15 May 1997". Novel Foods can be newly synthesised/ isolated compounds, foodstuffs produced using new technologies, products derived from new sources or foods traditionally consumed in non-EU countries.

The assessment of the first insect-derived Novel Food, the "dried yellow mealworm" (Tenebrio molitor larva), was carried out in accordance with the scientific principles described in the respective guidance document published by EFSA. The body of evidence assessed comprised of information on the identity of the Novel Food, its production process, its compositional profile (chemical, physicochemical, nutritional and microbiological data), as well as allergenicity aspects. Moreover, the history of use of the Novel Food and its source, the proposed uses, use levels and anticipated intake, and toxicological studies were evaluated as part of the safety assessment of this product.

"As the scientific officer coordinating this assessment on behalf of EFSA, I can confirm that the safety assessment of insects and products thereof requires a multifaceted combination of scientific expertise in areas such as chemistry, toxicology, microbiology, and nutrition. The contribution of the science of chemistry in such safety assessments is pivotal, especially when evaluating the compositional profile of these products. Similarly to the safety evaluation of other Novel Foods, qualitative and quantitative datasets were assessed, using expertise in food chemistry, biochemistry, and analytical chemistry.

So far, EFSA has received 17 insect-related Novel Food applications, out of which 2 have been finalised, 11 are under safety assessment, and 4 are subject to a suitability check before entering the assessment process. The insect species Acheta domesticus, Locusta migratoria, Gryllodes sigillatus, Tenebrio molitor, Alphitobius diaperinus, Hermetia illucens and Apis mellifera are among the sources of these novel food products."

Ermolaos Ververis
Scientific Officer, Nutrition Unit
European Food Safety Authority

MEMBERS' PERSPECTIVES

Inaugural Meeting of the Swiss Chemical Society's "Section Chemistry and the Environment"

This year's Swiss Chemical Society (SCS) Spring Meeting was dedicated to the topic of "Chemistry and the Environment" and constituted the inaugural meeting of the newly founded SCS Section with the very same name. It took place virtually on Gather. Taking place on 15 April 2021, it attracted more than 90 participants from Switzerland, as well as several delegates from other national Chemistry and the Environment Divisions, specifically Norway and Spain.

The meeting was opened by Kathrin Fenner, a founding member and the first President of the newly constituted Section Chemistry and the Environment (SCE) within the SCS. The SCE provides a platform for scientists carrying out fundamental and applied research in the area of environmental chemistry and ecotoxicology as well as regulatory and industry experts in the field. It represents them in national and international organisations. The Section's scope has been widely defined as covering "chemical processes that molecules undergo in the environment and their impact on it", where environment may include the biosphere, i.e., the terrestrial, aquatic, and atmospheric environment, but also the anthroposphere.

The participants received a greeting message from Ioannis Katsoyiannis, Chair of the European Chemical Society (EuChemS) Division of Chemistry and the Environment (DCE). He stressed the strong and long-lasting bonds between the EuChemS DCE and the SCS, and the important role of Switzerland and Swiss researchers in environmental sciences. He warmly welcomed the SCE within the European community and sent his best wishes to all members and participants.

The following scientific program nicely reflected the SCS DCE's activities and comprised contributions from academia, industry, and authorities. Topics covered and presented by eminent experts in the field included atmospheric chemistry on and over oceans (Lucy Carpenter), microplastic and global boundary threads (Tamara Galloway), the environmental fate of biodegradable polymers (Michael Sander), water purification and resource recovery by novel metal-organic frameworks (Wendy Queen), chemical innovation to support sustainable agriculture (Claudio Screpanti), future challenges in environmental chemistry legislation (Bettina Hitzfeld), and crop-plant responses to engineered nanomaterials (Arturo Keller).

Future activities and further information about the SCS are available at https://scg.ch/component/page/environment.

Thomas Bucheli
SCS Delegate to the EuChemS DCE

Kathrin Fenner
President of the SCS SCE

CHEMISTRY in Europe
Newsletter for European Chemistry, published by EuChemS

MEET…

Welcome in your new role at EuChems

Peter Venturini

Peter Venturini is the new President of the Slovenian Chemical Society. He is currently the managing Director of Synthetic Resins at Helios – The European Coatings Group

Dušan Sladić

Dušan Sladić is the new President of the Serbian Chemical Society. He is currently a professor at the Department of Chemistry of the University of Belgrade.

Stian Svelle

Stian Svelle is the new Secretary-General of the Norwegian Chemical Society. He is currently a professor in the Catalysis section of the Department of Chemistry of the University of Oslo.

CHEMISTRY in Europe
Newsletter for European Chemistry, published by EuChemS

8

2021-3

Interview with Jan Mehlich, recipient of the 2020 EuChemS Award for Service

Dr. Jan Mehlich is currently the Secretary of the EuChemS Working Party on Ethics in Chemistry. Science and technology ethicist with an educational background in chemistry, Jan Mehlich's academic interest lies in value co-creation processes and the role of scientists, engineers, designers, and other innovators in the discourse on sustainable scientific and technological progress. He has developed the on-line course Good Chemistry – Methodological, Ethical, and Social Implications, worth 2 ECTS Credits and now available on the EuChemS Moodle platform. His book was recently published to support chemistry students in their studies. Jan Mehlich will be awarded the 2020 EuChemS Award for Service. He will receive this award in recognition of his outstanding commitment and hard work in fostering chemistry in Europe, along with the activities and goals of EuChemS.

You will be awarded the EuChemS 2020 Award for Service. First, congratulations! How do you feel about this recognition?
I am extremely delighted and thankful for this award because it means that my efforts to support both scientific integrity and sustainable impact of chemical research and development with appropriate education is recognized and rewarded! Having such a visibility shows that the topic reached the midst of the chemical community.

A webinar will be organised by EuChemS in October 2021 (date TBD) during which you will be awarded the EuChemS 2020 Award for Service. Can you tell us which topic you plan to discuss during this online event?
From my experience, many chemists believe that all that ethics has to say about chemistry is good scientific practice and research integrity. I want to take the opportunity in this webinar to illustrate how chemists equipped with normative discourse competences contribute more efficiently to sustainable progress, become responsible innovators in academia or industry, and succeed in shifting dual use potentials towards the benefit side.

Could you give us an insight into how your career has developed? What drove you to specialise in Applied Ethics?
As a PhD student doing research on nano-scale surface patterning, I took notice of the public debate on nanotechnology that was often closer to science fiction than to what we nanoscientists actually did in the lab. I thought it would be necessary to have scientific experts who, at the same time, also have the competence to discuss ethical and societal issues of their field of progress. With an additional Master degree in 'Applied Ethics', equipped with skills in argumentation and ethical reasoning, I got a job at a technology assessment institute and elaborated recommendations for the European Commission on how to foster the development of nanomedicine with proper regulation. The experiences in this project encouraged me to pursue an academic career in the field of science and innovation ethics.

You created the on-line course Good Chemistry – Methodological, Ethical, and Social Implications, which is now available on the EuChemS Moodle Platform, and published a related book with the same title. Can you please tell us more about this course and its development?
Ethics plays a role for chemists in two different ways: On the one hand, the conduct of research follows certain professional codes that a good chemists should be committed to. The fact that, obviously, not all members of the scientific community comply with these guidelines calls for a better education in scientific integrity. Thus, one part of the course is dedicated to this topic. On the other hand, chemical activity—academic research, industrial R&D, Innovation and trade of goods—has a deep impact on society and environment, both positive and negative. The way we deal with these impacts nowadays demands for chemists with the competence and willingness to contribute with their expertise to the discourse on scientific and technological progress. Therefore, the course dedicates about half of its time to sustainability, risk, dual use, innovation governance, and public communication. The book is based on the lecture scripts of this course and provides a lot of additional material like case discussions and exercises. With this book at hand, students who attend the MOOC have a chance to dig deeper into their topics of interest and get much more background information and practice opportunities than the course can provide in limited time.

Will there be other follow-up initiatives concerning Good Chemistry?
Among the two main threads of Good Chemistry—scientific integrity and impact of chemical progress—there is certainly more to be done on the latter. The guidelines that we ask professional chemists to comply with won't change much, but our research uncovers more and more ways in which chemists' contribution can improve science and innovation policy, corporate innovation efforts, public attitude towards scientific expertise, and the efficacy with which we, collectively, tackle the big issues of our time such as climate change, pollution, energy supply, public health, mobility, and others.

You also currently serve the EuChemS community as the Secretary of the EuChemS Working Party on Ethics in Chemistry. In what ways does being part of a EuChemS Professional Network benefit you and your work?

When I joined this working party, I thought of it as a great networking opportunity to meet like-minded chemists. Now I know that it is much more than that. Over the past 10 years, we met frequently and had inspiring and enlightening discussions on topics at the intersection of chemistry, applied ethics, and society. Different colleagues had totally different ideas of what constitutes this intersection, ranging from history and culture to moral philosophy and epistemology to sociology and psychology. It is only through this operation in the inter-space—between people, between views, between experiences—that I could shape and refine my understanding of the normative-ethical dimensions of chemistry.

What are your next professional projects?

In the near future, I will join the University of Bonn and continue my theme of bridging scientific-technical with normative expertise in interdisciplinary multi-stakeholder discourses. Hopefully, research in this field results in strategies or tools for scientists, engineers, and other innovators to translate value and norm commitments into actual studies and designs efficiently and sustainably.

This interview is coming to an end, would you like to add a few words?

I am grateful to EuChemS for its continuous support of the theme Ethics in Chemistry! Especially, I'd like to thank the colleagues and friends without whom I would not receive the honour of this award: Hartmut Frank and Luigi Campanella of the working party Ethics in Chemistry, Iwona Maciejowska of the Division of Education in Chemistry, former EuChemS presidents David Cole-Hamilton and Pilar Goya, and the indefatigable Nineta Hrastelj!

Interview of Jan Mehlich, Recipient of the 2020 EuChemS Award for Service and Member of the EuChemS Working Party on Ethics in Chemistry
Conducted by Laura Jousset, EuChemS Science Communication & Policy Officer

CHEMISTRY in Europe
Newsletter for European Chemistry, published by EuChemS

10

2021-3

NETWORKS

The EYCN: Steering the Boat through a Global Pandemic

From March 2019 to March 2021, I was Chair of EYCN, the European Young Chemists' Network (EYCN), the youth division of the European Chemical Society (EuChemS). The EYCN is a dedicated group of young scientists from 27 European nations and 29 European Societies, with approximately 40 official delegates representing and supporting over 45.000 early-career chemists across Europe. EYCN's mission is to provide early-career chemists in Europe with growth and networking opportunities through various programs and events. The EYCN also intends to raise chemistry's visibility and bring it closer to a broader audience, including schools, industrial partners, business, and science policymakers. Our activities and actions are based on the voluntary work of many young chemists, and it might be challenging to balance these responsibilities with everyday scientific work or private hobbies.

Looking back on my time as the EYCN's Chair, I can clearly distinguish two distinct "eras". In 2020, EuChemS was celebrating its 50th anniversary and later the European Chemistry Congress, with lots of festivities planned across that year. During 2019, the EYCN was involved in more than 30 activities in Europe and beyond, either coordinating or supporting them. More than 20 symposia were supported, and roughly 30 young chemists were recognized for their excellent contributions to science. Moreover, the EYCN was widely advertised and received positive feedback from a large community of chemists for its photography contest 'Photochimica' and the video contest 'Chemistry Rediscovered – In your element', both closing during the IUPAC conference in Paris. Later, in early January 2020, the EYCN met in their 15th Delegate Assembly (DA) meeting in Sitges, Spain, hosted by the Catalan Chemical Society (SCQ) and welcomed delegates and guests from over 20 countries. We were lucky to have the EuChemS President, Pilar Goya, and the President-Elect, Floris Rutjes, participate in the DA and share their views on the EuChemS future.

Shortly after our annual DA, the global COVID-19 pandemic landed, altering any plans for the EYCN during 2020. I guess you can call it "the second era". It changed how we work, adapted to interacting with friends, family, and colleagues, and communicated and disseminated information. Even though the nature of our networks relied on a widely distributed network of young professionals across Europe, I felt as if we were constantly losing something on these electronic interactions. The lack of in-person interactions on ongoing business meetings could never be replaced.

Nonetheless, the EYCN quickly recovered, and we embarked on a series of webinars (www.chemistryviews.org/details/ezine/11284546/A_Virtual_Journey_in_Empowering_Early-Career_Chemists.html), together with our partner organization International Younger Chemists Network (IYCN). These webinars started as a campaign to fight fake news about the COVID-19 outbreak. They spread information on relevant initiatives, but we quickly adapted the content to topics more attractive to young chemists.

Also, due to the postponement of the 8th EuChemS Chemistry Congress (ECC8) until 2022, the EYCN hosted the e-YCN@ECC event, which was both an "electronic" and a "European" Young Chemists' Meeting. The online event included multiple sessions about the future in chemistry, different career opportunities, and professional development for young scientists in academia and industry. In the words of Alice Soldà, Advisor to the EYCN Board and project leader, "COVID-19 should not interfere with our curiosity and knowledge outside the classic scientific field".

Moreover, the EYCN continued all of our contests, starting and concluding the photography contest 'Photochimica', centred on the 50th year celebration of Earth Day and sustainable development (www.rsc.org/news-events/articles/2020/05-may/photochimica2020-winners-announced/) together with our colleagues in the Royal Society of Chemistry (RSC). Finally, in early 2021, we also prepared the next set of the contest 'Chemistry Rediscovered' (still opened at the moment of writing this article), focused on safety in Chemistry (www.euchems.eu/divisions/European-young-chemists-network/contests/).

Any leadership position is tricky; you must experience it to understand it. During my time at the EYCN, we faced numerous challenges that we had not anticipated nor foreseen at the outset. However, none of this would have been possible without the efforts and collaboration of many people across the EYCN, EuChemS, and many of our European friends. I'd like to express my sincerest gratitude to each and every one of you for this. I attempted to set a positive example, and I tried to recognize the efforts of each member of my team, supporting their ideas and projects and assisting them in their completion. However, when I stop to think about it, the thing that has stuck with me all these years is that I always attempted to form a group of friends, a "European family," which provides far more satisfaction than any working group. That is the EYCN for me.

Antonio M. Rodriguez Garcia
Past-Chair of the EYCN

CHEMISTRY in Europe
Newsletter for European Chemistry, published by EuChemS

The EYCN: Returning to the New Normal

2021 was a special year for the European Young Chemists' Network (EYCN) and its Delegate Assembly (DA). For the first time ever, the DA had to be held entirely online and came with a new set of challenges after we luckily held our 2020 DA shortly before the Covid-19 pandemic spread to Europe.

For me, this year has also been a very special one: The delegates honoured me by electing me as the new Chair of the EYCN, and I am thrilled to continue in this role after my two years as Secretary of the network from 2019 to 2021. The last two years have been a great effort of a fantastic team to adapt to the challenging times, and I am very grateful for everyone that has supported us in this time. I am equally thankful to the new members of the EYCN Board and our current delegates that are sacrificing their free time to offer interesting information and opportunities to early-career researchers across Europe! Moreover, I need to thank our previous chair and current advisor, Antonio M. Rodriguez Garcia, who has been a great role model in the last two years and helped me start in this new position.

The following two years will be heavily influenced by finding the best way to return to in-person events while simultaneously providing digital solutions for a broad audience. We have learned a lot in the past 18 months and established multiple series with our partners, such as CatalysisTalks, which is hosted with the Young European Catalysis Network (YEuCat). Furthermore, we have been and are continuing to expand our support programs to help everyone from Europe and interested in Europe find the best options for their career.

However, one thing remains more important than all these things: You! Without our members joining our events, using our web pages, and keeping us informed about the many developments around the world, we would not be the same. We are always happy to hear your opinions and suggestions and work with you to make them happen, so please don't hesitate to contact me at chair@eycn.eu.

Maximilian Menche
Chair of the EYCN

CHEMISTRY in Europe
Newsletter for European Chemistry, published by EuChemS

12

2021-3

EuChemS Working Party Ethics in Chemistry: "Join our activities!"

The roots of the EuChemS working party Ethics in Chemistry date back to the early 2000s when Hartmut Frank, environmental chemist at the University of Bayreuth, reached out to Nobel laureates Richard Ernst and Roald Hoffmann, and other like-minded chemists like Carl Djerassi and Francesco Dondi, to discuss the professional responsibility of chemists as actors with great impact on society and the environment. The group expanded and constituted itself as a EuChemS working party with official delegates from many national member societies. Among its joint efforts are position papers on topics at the intersection of chemistry and applied ethics in Angewandte Chemie and Chemistry – A European Journal, symposia at the biannual EuChemS conferences, and the conceptualisation and realisation of an online course Good Chemistry: Methodological, Ethical, and Social Dimensions offered on the e-learning platform of EuChemS to chemistry students in the EU.

A key theme that structures the work and the discussions of the working party is the insight that chemists have both internal and external responsibilities for their decisions and actions. The internal domain concerns good scientific practice, research integrity, and the compliance with professional guidelines of how to do science right. The external dimension includes topics such as the dual use character of chemical innovations, sustainability, risk, and the role of chemical expertise in science policy and innovation governance. With this pragmatic-practical approach, the working party aims to represent the chemical community in those science and innovation discourses that have an applied-ethical dimension that is relevant for the daily professional conduct of chemists.

After a pandemic-induced period of reduced activity, the working party is back on track and ready to manifest its energy in new projects. Currently, not all the national member societies of EuChemS are represented in the working party. Moreover, diverse and fresh approaches to ethical discourses in chemistry are always welcome. EuChemS members with a personal or professional interest in aspects of responsible conduct in chemical science, innovation, education, communication, or regulation are invited to join the WP! Please contact the Steering Committee of the working party (see the WP website). A fruitful collaboration creating synergies for meaningful contributions to the interdisciplinary discourse on good chemistry lies ahead!

Hartmut Frank, Hans W. Steisslinger, Jan Mehlich,
The EuChemS Working Party on Ethics in Chemistry

Sources:

- Angewandte Chemie paper: https://doi.org/10.1002/anie.201007599
- CEJ paper: doi.org/10.1002/chem.201605259
- WP website: https://www.euchems.eu/divisions/ethics-in-chemistry/

13

2021-3

CHEMISTRY in Europe
Newsletter for European Chemistry, published by EuChemS

CHEMISTRY TALKS

Interview with Mai Thi Nguyen-Kim

Dr. Mai Thi Nguyen-Kim is probably one of the best-known German science communicators. This chemist with a Ph.D. reaches 1.3 million subscribers with her YouTube channel maiLab. She is also a television presenter (with her own show starting in autumn) and bestselling author. She has received many awards, including the Order of Merit of the Federal Republic of Germany as well as the GDCh Prize for Journalists and Writers.

To mark the occasion, Dr. Christian Remenyi of Nachrichten aus der Chemie and Dr. Vera Koester of ChemistryViews met with her to talk about her ambitions, responsibility, and the prevalence of hate speech.

Mai Thi Nguyen-Kim imagines science communication to be like an onion: "Original scientific literature is on the inside and Instagram or TikTok, for example, on the outside. You have to pick people up somewhere and then draw them further into the onion. That is why every layer of the onion has its place, and all of them are needed."

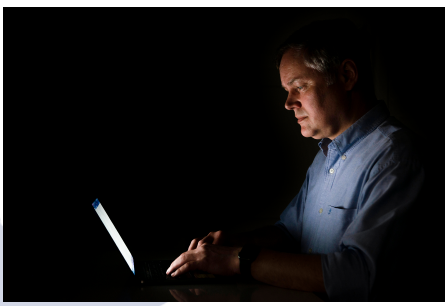
Her aim is for what she does to not only be well-received by the lay public, but also that scientists who, when they see her content, will say it's good. That is why she is particularly pleased to receive the GDCh award. "It means a lot to me personally to receive this appreciation from the chemistry community."

It is a great challenge to build this bridge between science and science communication. Mai Thi Nguyen-Kim says in the interview that the majority of her job consists of learning, and she says: "I think that's cool!"

Read or watch the full interview in ChemistryViews: https://doi.org/10.1002/chemv.202100054

Paradigm shift in organic chemistry

A paradigm in organic chemistry that has been in use since 1931 has turned out to be wrong, Amsterdam scientists found. It is not carbon s-p hybridisation, but steric repulsion that causes the variation of e.g. C-H bond lengths. 'This discovery has been in the making for about twenty years.'



Matthias Bickelhaupt ©Friso Spoelstra

President's Column

Conference on the future of Europe

Do you know that the Conference on the Future of Europe has been launched recently? This concerns a joint initiative of the European Council, European Parliament, and European Commission to stimulate citizens to participate in shaping Europe's future (futureu.europa.eu). It is an opportunity for everyone to speak up and express what they think is important for Europe. You can directly bring in your own ideas through a digital platform and this is combined with a series of debates with panels of EU citizens on national and European levels. Nine key topics have been chosen including climate change, health, social justice, and migration. The outcome will be used by the Council, Parliament, and Commission to draft new policy that is in line with the recommendations made by the Conference.

I do like the initiative, however, predefining topics can also be dangerous. Most strikingly, research and innovation, or science in general, have not been identified as priority topics by the Conference. Why not? The current pandemic, the climate crisis (the recent IPCC report has shown that the situation is more alarming than we perhaps imagined), and the waste problem – to name a few global challenges – will require significant investments in research and innovation in different scientific areas, thereby unlocking the immense potential of Europe's researchers.

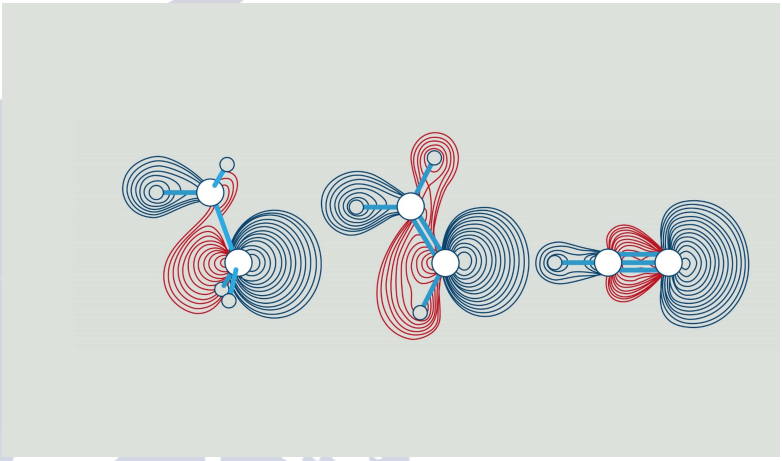
It is actually part of the standard rules in (physical) organic chemistry textbooks: the bond length between two atoms becomes shorter if you increase the s-character of one of the two atoms. So, the distance between atoms decreases in the hybridisation trend sp3-sp2-sp, like the C-H bond in ethane, ethene and ethyne.

'Before our discovery, it was actually never investigated whether this phenomenon really works that way with quantitative quantum chemical methods,' says Matthias Bickelhaupt, Professor of theoretical chemistry at Free University (VU) Amsterdam. 'Yes, the hybridisation rule seems plausible, and you can often observe corresponding correlations. But whether s-p hybridisation is the reason for bond length trends has never been proven quantum mechanically.'

Bickelhaupt's team used a quantitative molecular orbital theory (MO) in combination with an energy decomposition analysis. This forms a model that both reveals the mechanisms and causal relationships and quantifies the associated effects. 'This enables us to determine both qualitatively and quantitatively how important certain effects are.'

So, what are the details concerning steric repulsion? 'The C-H bond overlap does indeed reach its optimum at shorter distances when you go from sp3to sp. Interestingly, however, that optimum lies at very short distances, roughly at about 0.7 Å and thus far below the C-H equilibrium distances of 1.07 to 1.10 Å. Around that final bond length, a totally different mechanism dominates, namely the steric repulsion (Pauli-repulsion) between the substituents (H-, CH3-, H2C= or HC≡) around the carbon atom of the C-H bond in question. This steric repulsion is a manifestation of the so-called Pauli repulsion between electrons of equal spin,' Bickelhaupt explains, 'and it clearly decreases when you go from 4, to 3 to 2 substituents around the carbon atoms in ethane, ethene and ethyne respectively.'

Want to read more details about the implications and the research that led up to this paper? Then please visit the original article at www.C2Winternational.nl/c2w-2021-issue-3/paradigm-shift.



A visual representation of the steric effect on bond lengths ©the videomatic

Their contributions are needed to realize fundamental sustainable and digital transitions and at the same time keep Europe operating at the forefront of science in the highly competitive international arena.

The ERC Scientific Council, a strong promotor of high-quality research across the European Union, has already made a strong plea to scientists, funders and organisations involved in developing research policy to engage in the Conference and bring across the crucial role of research and innovation. On behalf of EuChemS, I would like to reiterate that request to all European chemists to ensure that research and innovation in chemistry and related fields will keep its crucial role in addressing the global challenges: propose ideas via the online platform, try to become involved in organising events or citizens panels and do emphasise the relevance of science. It is of the highest importance that Europe continues to recognise and stimulate the value of science, and the role of chemists and chemistry research in particular. By spring 2022, the Conference is expected to report on the conclusions, and I am confident that thanks to your contributions, research and innovation will remain an integral part of the future European agenda.

Floris Rutjes
EuChemS President

CALENDAR

In the current environment and status of COVID-19, some events recognised by EuChemS are being postponed or canceled. However, EuChemS Events calendar is being updated on a regular basis.

If you plan to attend an event, we invite you to check the calendar here.

We encourage organizers of conferences related to chemical sciences to apply for EuChemS Recognition of Event. Once your event is recognized, you will be able to use EuChemS logo. We will add the event to the EuChemS Events Calendar and we will share the event on all our social media channels.

The recordings of EuChemS online events are available on the EuChemS YouTube Channel.

COLOPHON

Chemistry in Europe (CiE) is the EuChemS quarterly newsletter mainly intended for an audience of chemists. Its objective is to inform the community about research in Europe, to provide updates from EuChemS Member Organisations, and to investigate the latest policy-related developments.

Editorial Board:
Liva Dzene, Pilar Goya, Nineta Hrastelj (Editor in Chief), Laura Jousset (Coordinator), Anna Robinson, Floris Rutjes, Victoria Samanidou, Karin Schmitz, Emmanuel Sinagra, Cristina Todaşcă.

Copyright Notice
Chemistry in Europe is published by EuChemS under a Creative Commons license. EuChemS permits others to copy, distribute or display this content if EuChemS is referred as its sources.

www.euchems.eu

secretariat@euchems.eu

Rue du Trône 62, B-1050 Brussels, Belgium

@EuChemS