

# BULLETIN DU GROUPEMENT

d'informations mutuelles



Groupement  
**AMPERE**

SE CONNAÎTRE, S'ENTENDRE, S'ENTRAIDER

July to September 2021

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If you would like to become a member of the AMPERE Society, you can register online under: [www.ampere-society.org](http://www.ampere-society.org)

## Editorial



Dear members of the Groupement AMPERE,

fall has started last week and the summer with many online conferences is already over. EUROMAR this year was an online experience with many very diverse talks, posters, and vendor contributions. A big „Thank you!“ goes to Janez Plavec and his team for organizing the conference under ever changing conditions and expectations. You can read his report about the EUROMAR 2021 in this Bulletin on page 10. The organization for the EUROMAR 2022 in Utrecht has already started and we hope that it will be an in-person conference where we can socialize and exchange ideas with friends and colleagues. But the past year has taught us that the planning has to include options for a hybrid or online conference in case the situation does not improve as much as we hope for.

There was one in-person conference organized by the Groupement AMPERE this summer: HYP21 in Lyon was very successful and I heard a lot of positive comments from students and colleagues. Our thanks go to Sami Jannin and Anne Lesage for taking the risk in the current unstable situation. From what I have heard it was worth it and it paid off. I really hope that we will see more in-person conferences during the next summer.

Best regards and best wishes for a successful start of the fall semester,

Matthias Ernst  
Secretary General, Groupement AMPERE

## Portrait: Prof. Christina Thiele

### why magnetic resonance and why NMR and MRI?

Because NMR is (in my opinion) the ideal method to have a look at the structure of compounds and also how they change over time. This (sometimes) allows you to better understand function. I especially like the putting together of individual pieces of information to the whole picture as in a puzzle.

### what is your favorite frequency?

600 MHz, because it was the first NMR-spectrometer I had, when I still had time to do research myself.

### what do you still not understand?

(My special version of) time dilatation: If you are sitting in a boring meeting (no motion) every minute stretches forever. If you do something you like (e.g. hiking, you are moving), time passes very quickly. Doesn't theory say, that it should be the other way around?

### luckiest experiment you have ever done.

See below (worst mistake).

As patience is not one of my strengths: I particularly like experiments in which you can follow your theory and immediately see success, e.g. when monitoring (photo)chemical reactions.

### what was the worst mistake you have made during your lab time?

I have done my Ph.D. in synthetic organic chemistry. This also involved using acetylene in gaseous form. In the typical cylinders it is dissolved in acetone. As I was doing a Grignard reaction, the presence of a ketone was not acceptable. Thus acetone needed to be removed. This is routinely done by immersing a cold trap into a dry ice bath to condense acetone in the cold trap. One day there was no dry ice, thus I took liquid nitrogen instead. This was not a good idea at all. By the time I noticed that something was odd, the cold trap obtained a lot of frozen acetylene. Luckily, it did not blow up.

### most memorable conference story

I was sitting in a dark lecture hall. Suddenly somebody made really strange noises as if suffocating. The speaker stopped talking. Colleagues took care of that person trying to get him back to conscience. Everybody was really worried. Then the person awoke and it became clear that the person had only been sleeping and that the strange noise was actually very loud snoring.

### with whom (historical person) would you like to meet?

Richard Feynman

### when do you get your best ideas?

During exercise or in the middle of the night (3 a.m. is a classic).

### if you had just one month time for travelling - where would you go to?

New Zealand.

### your idea of happiness?

To have time !

....to think.....

....to travel....

....to do whatever you want.....

....without a deadline.

For example if the weather is nice and you are at the top of a mountain. It has taken you hours to get there. Now you can see very far.....and as you have time you can enjoy the view .....and select the summit you will do tomorrow.....and the day after that.



Photo © Philipp Czechowski

### Position:

Professor for organic chemistry, Technische Universität Darmstadt  
Homepage: [www.thielelab.de](http://www.thielelab.de)

### Awards:

ERC starting grant (RDC@catalysis), Heinz-Maier Leibnitz prize of the DFG, Adolf-Messer prize

### Education:

born and grown up in Austria, chemistry studies in Dortmund and London, Ph.D. in organometallic chemistry in Dortmund, independent research in Leipzig and Darmstadt, professor there since 2010.

### Research Interests:

structure elucidation of organic compounds by isotropic and anisotropic NMR parameters, reaction monitoring to investigate organic reactions and organometallic transformations, in-situ irradiation NMR spectroscopy to follow photochromic processes and photo(redox)catalysis, (Lyotropic) liquid crystals (mostly of helically chiral homopolypeptides) as alignment media for the measurement of anisotropic NMR parameters, introducing stimuli into these polymers

## AMPERE Awards and funding for AMPERE Events

The Groupement AMPERE presents two awards to outstanding young scientists at the EUROMAR Conferences and provides competitive funding for AMPERE events. The awards are evaluated by the Prize Committee.

**The AMPERE Prize for Young Investigators** is awarded biannually, during the Euromar Opening Session. The prize is intended for an early-career independent researcher less than ten years after graduating with a PhD degree in recognition of his or her achievements in the field of Magnetic Resonance. Since 2016, it has been awarded to Enrica Bordignon, Katja Petzold, Thomas Theis, and Antoine Loquet. The next Ampere Prize will be awarded at the Euromar 2023 in Glasgow.

The other award is the **Raymond Andrew Prize**. In memory of the pioneering work of Raymond Andrew the Groupement Ampere awards the Raymond Andrew Prize to young scientists for an outstanding PhD thesis in Magnetic Resonance each year at the Euromar conference. The past recipients are Song-I Han, Elena Vinogradov, Fabien Ferrage, Christian Beat Hilty, Carlos Mattea, Christian Degen, Boaz Shapira, Nils Lakomek, Benjamin Wylie, Mark Hunter, Galia T. Debelouchina, Michael C.D. Tayler, Oliver Duss, Jean-Philippe Demers, Frédéric A. Perras, Andrin Doll, Giuliana Fusco, Thach V. Can, Christian Bengs, and Reid Alderson.

Eligible for the Raymond Andrew Prize 2022 are candidates who completed their dissertation in 2021. Nominations should be received by 15<sup>th</sup> February 2022. They should include:

- Nomination letter
- Curriculum vitae
- List of publications and presentations at conferences
- PhD thesis in PDF

The thesis should be written in English and submitted to [awards@ampere-society.org](mailto:awards@ampere-society.org). Submissions that arrive too late will automatically be transferred to the next year. The prize committee will reconsider excellent contributions for two years in a row.

The Prize Committee also accepts proposals for competitive **funding of AMPERE Events**. Such events are typically organized by the subdivisions of the AMPERE society but can also be singular Colloquia on current topics in Magnetic Resonance such as a Colloque AMPERE in former times. To this end a limited amount of funding is assigned annually by the Bureau AMPERE. The organizer of an AMPERE event submits a proposal to the Prize Committee who decides the amount to be granted taking the

following into account:

- the scientific quality of the proposal
- the proposed purpose of the use of funds. A strong educational component is encouraged
- the size of the event
- the track record of support by the AMPERE Society
- the measures to provide gender balance.

A proposal needs to be submitted at least 3 months prior to the event and no later than by March 1<sup>st</sup>. The proposal is limited to 2 pages in length and should contain the information about:

- the event to be supported (name, location, number of participants expected)
- the amount of subsidy requested
- how the money is to be spent
- how the gender balance will be promoted.

A short report for the AMPERE bulletin is requested from supported events.

The **Prize Committee** consists of Prof. Mark Smith, Prof. Annalisa Pastore, Prof. Hartmuth Oschkinat, Prof. Alexej Jerschow, Prof. Enrica Bordignon, and Prof. Bernhard Blümich.

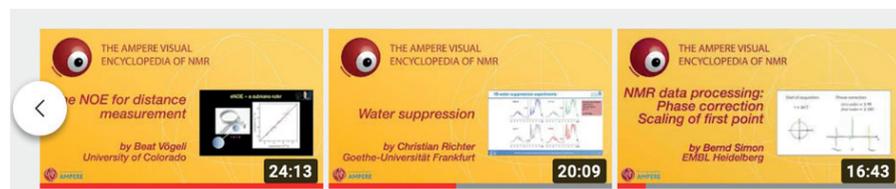
Nominations and proposals should be sent to [awards@ampere-society.org](mailto:awards@ampere-society.org).

## The AMPERE visual encyclopedia of NMR spectroscopy: Call for videos

The Groupement AMPERE has created an online video collection, the “AMPERE visual encyclopedia of NMR spectroscopy”, with the goal to provide educative videos on theoretical and practical topics from all areas of NMR spectroscopy.

The encyclopedia is provided free of charge via YouTube and (in the future) the internet pages of AMPERE. The collection contains already more than 10 videos at this point and we aim to grow it gradually. The scientific quality of the videos is peer-reviewed.

<https://www.youtube.com/channel/UCE1IIXjllorZKchjvd3Vtng/featured>



**We now call for researchers at all career stages to submit videos covering topics of their choice for publication as part of the encyclopedia.**

Each video should have a length of about 15 minutes and treat a single, self-contained topic. Ideally, videos are both motivating to beginners and serve as a technical reference for NMR spectroscopists at all levels. Challenging and extensive topics should be suitably split up into subtopics.

Interested authors should contact the AMPERE video division to coordinate the submission and thematic planning, as well as technical support. Videos can be submitted at any time.

[video@ampere-society.org](mailto:video@ampere-society.org)

## Report: AMPERE Biological Solid-State NMR School online January 13<sup>th</sup> to May 26<sup>th</sup> and June 14<sup>th</sup> to 18<sup>th</sup>

The AMPERE Biological Solid-State NMR School has long been an important meeting point of PhD students, postdocs and principal investigators active in the field of solid-state NMR. Communication and networking was and is most important, not only with the teachers but especially among students and postdocs to make sure that they exchange knowledge, experiences and build up a network which will help them in their (academic) career later. In recent events this was heavily supported by non-scientific events like gourmet style tapas, wine and plenty of Mallorca sun.

That much to the concept which was obsolete already in 2020 when the first attempts were made to hold the course again at the university in Palma. Since infections were strongly increasing, the course was postponed to 2021. As it became obvious that the pandemic would be a long-term event, plans were changed to have a workshop in Berlin under distance-enforcing conditions. As also this seemed to be out of sight, a two-section course program was organized, with most of the theoretical background presented in biweekly lectures on Wednesday afternoons starting in January 2021, interleaved with exercises in the tradition of the course. In addition, an online program for the afternoons of the week from June 14<sup>th</sup> until June 18<sup>th</sup> 2021 was set up with emphasis on practical details in contrast to the very theoretical introduction in the Wednesday afternoon program before, and poster presentations by the students.

The idea was to encourage discussions among and with students by running a Slack channel that should serve as major communication platform outside official teaching hours in parallel to the usual zoom conferencing software. In the first phase of the course, the Slack channel was especially meant to place the lectures and exercises, to ask questions at any time, and to discuss the exercises prior to the more formal sessions on the Wednesdays between the lectures.

However, the actually unfortunate circumstances enabled a larger number of participants to join the course, and from more distant countries. In total, there were 71 students, 44% of them female, from 18 countries, including Canada, China, Brazil, UK, Poland, France, Netherlands, India, Denmark, Finland, Switzerland, Sweden, Israel, Italy, USA, Russia, Romania and Germany.

The program started on the 14<sup>th</sup> of January with the already legendary introduction into quantum mechanics by Beat Meier, who took the usual care to explain all symbolics and definitions meticulously. After the exercises, it became more focused on solid-state NMR by introducing anisotropy and magic-angle spinning. Matthias Ernst then introduced concepts for analyzing time-dependent Hamiltonians, spread over two lectures, where

at first time-dependent Hamiltonians were introduced and then methods to solve them, such as Floquet- and Average Hamiltonian Theory. In March Beat Meier gave an introduction into relaxation and general effects on linewidths in solid-state NMR, and in a lecture/exercise session held over two successive days Hartmut Oschkinat went through product operator calculations for simple pulse sequences, dedicated to the biochemists in the crowd. In April Thomas Vosegaard introduced SIMPSON as one of the most appreciated programs for calculating MAS NMR spectra, and Enrica Bordignon gave a general introduction into EPR. This has then provided the ground for an introduction into Dynamic Nuclear Polarization (DNP) as one of the very advanced and up-to-date techniques research is currently focusing on, given as usual by Robert G. Griffin, the major protagonist of the field.

The series of Wednesday lectures was concluded by Huub de Groot, who reminded everyone of the challenges of modern structural biology into which all the theoretical knowledge should condense through the design of significant and instructive experiments. Prior to the online week and as a preparation for the more practical aspects regarding spectral assignments, Vicky Higman and Anja Böckmann were then introducing the software package CCPN.

The program of the week from June 14<sup>th</sup> to 18<sup>th</sup> was reduced to the afternoon hours from 3 to 6 o'clock assuming that people were participating in other online courses too. The program was structured such that student presentations had a special place. It was focused on teaching from Monday to Thursday, with poster presentations by the students between the two lectures given by experts. In this time, separate rooms were made in Zoom so that the participants could visit the poster presenters and discuss details "in person", with a coffee in their virtual hand. On Friday four research talks were given to display the usage of NMR in exciting structural biology projects.

On Monday, June 14<sup>th</sup>, Thomas Vosegaard introduced decoupling and recoupling techniques and did this with wonderful insight and in a very didactical manner. After the poster session, Anja Böckmann and Beat Meier introduced procedures for achieving resonance assignments covering pulse sequences employing carbon or proton detection. On Tuesday, June 15<sup>th</sup>, Matthias Ernst was first discussing very valuable details of MAS solid-state NMR as to the adjustments and choices of CP conditions, and mixing sequences. After the poster presentations Vicky Higman practiced assignment procedures with the participants. On Wednesday Bernd Reif was first introducing relaxation and dynamics in a very comprehensive lecture and after the poster session Bob Griffin presented latest results on Dynamic Nuclear Polarization, in particular experiments involving pulsed microwave irradiation. Thursday was devoted to structure calculations, with Benjamin Bardiaux introducing the basic calculation concepts and CNS. Max Bonomi was presenting latest structure calculation strategies such as Bayesian inference in integrated structure calculations. The Friday program had

four exciting lectures on the application of NMR in a biological context, with excursions to solution NMR. Adam Lange made the start with integrative structural biology giving an overview of bacterial adhesion systems and his latest results on potassium channels. Enrica Bordignon was displaying wonderful applications of EPR such as, for example, on ABC transporters. Very nice applications of DNP were presented by Marc Baldus in his overview about in-cell MAS NMR. The last word had Malene Ringkjøbing Jensen who talked about a strong side of solution state NMR, the detection of low populated states in structural biology.

We hope that the next iteration of the school in two years can be held again in person and is planned to be in Denmark organized by Thomas Vosegaard. The exact time and place have not yet been determined.



## Report: Euromar 2021 online, June 21-23



The 17<sup>th</sup> EUROMAR was planned originally to take place from 5<sup>th</sup> to 8<sup>th</sup> of July 2021 in Portorož, Slovenia. Due to COVID-19 restrictions the conference was conducted as a live-video streaming event. A custom-made platform was developed specially for this purpose, taking into consideration the limitations of virtual communication tools as opposed to face-to-face meetings and trying to overcome them. The intention was to design as user-friendly and comfortable virtual experience as possible. The organizers aimed to foster participants' engagement by including an assortment of user meetings, workshops and webinars to complement the lectures by experts from all over the world. The goal of the conference was to maximise the exchange of knowledge and expertise on development and application of magnetic resonance spectroscopy in different fields, including life sciences, analytical and pharmaceutical applications, battery and storage materials, small molecules, quantum materials, relaxometry and others.

### Committees:

The International Scientific Committee was formed by:

Janez Plavec (Chair), National Institute of Chemistry of Slovenia; Thomas Prisner, University of Frankfurt; Marina Bennati, University of Gottingen; Patrick Giraudeau, University of Nantes; Luisa Ciobanu, CEA-Saclay; Isabella Felli, University of Florence; Anne Lesage, Institute of Analytical Sciences Lyon; Janez Dolinšek, Institute Jozef Stefan; Wiktor Kozminski, University of Warsaw; Lukas Trantirek, Masaryk University;

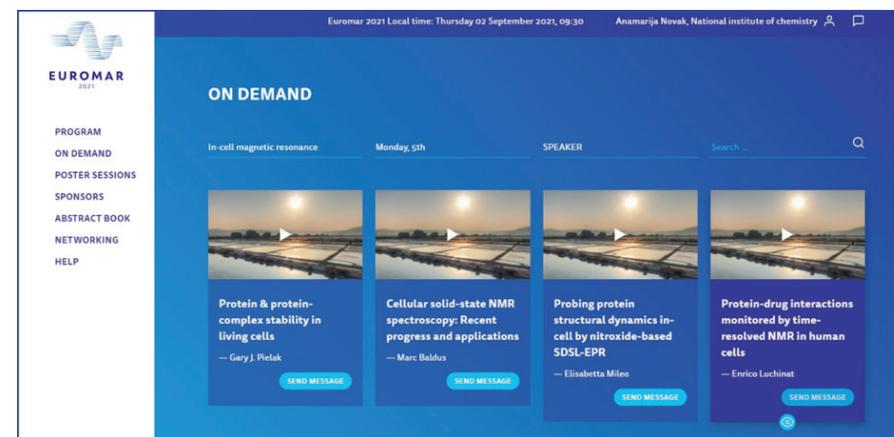
Georgios Papavassiliou, National Centre of Scientific Research Demokritos; Tomaž Apih, Institute Jozef Stefan and Yishay Manassen, Ben Gurion University.

### Members of the Local Organizing Committee:

Janez Plavec (Chair), Maja Marušič, Igor Serša, Primož Šket, Maria Toplishek, Matej Pregelj, Gregor Mali, Janez Dolinšek, Boštjan Zalar, Damjan Makuc, Tomaž Apih, Andrej Zorko, Peter Podbevšek, Denis Arčon, Anita Kotar, Marko Trajkovski, Martin Klanjšek, Vojč Kocman, Martina Lenarčič Živković, Aleš Mohorčič, Petra Jaksetič, Anamarija Novak and Matjaž Polak.

### Promotion & Communication

Conference's website was set up towards the end of the year 2020. After the EUROMAR 2020 in Bilbao, which needed to be postponed by six months due to COVID-19 pandemic, we were able to start promoting our event only in January 2021. In addition to the website, organizers relied on Facebook and Twitter to publicize the conference. A total of 195 Followers were recorded on Facebook and 1311 Followings and 1163 Followers on Twitter. A special custom-made live streaming platform enabled the conference to include broadcasted plenaries, invited and promoted lectures and user meetings, workshops and webinars. All video content was sorted into three platform channels, the main being Proton and the parallel ones being Nitrogen and Carbon. During the whole conference, networking and participants' discussions were promoted via B2B meetings through dedicated individual chat channels. An important advantage of the platform was the on-demand watching of all of the conference's contributions, with every registered participant having access to it during the conference and for one month after its closing.

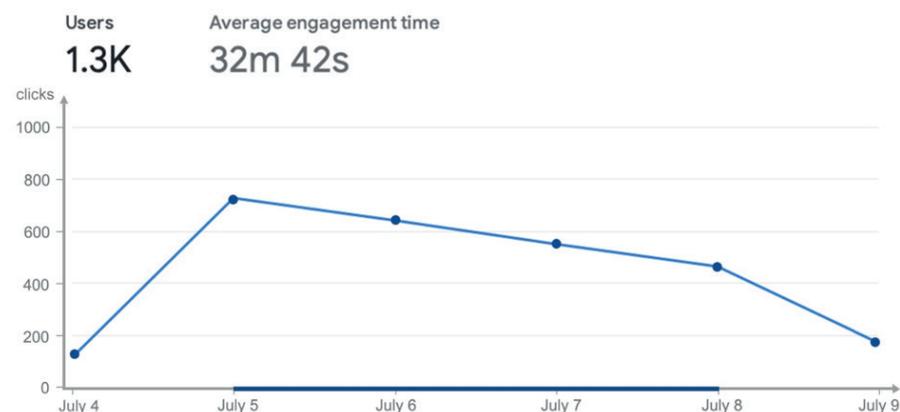


## EUROMAR 2021 in Figures

During the 4 days of the conference the organizers registered more than 130 live-streamed video lectures and discussions and over 130 poster presentations. More than 560 unique IP accesses from more than 60 countries all over the world were noted.



On average, there were 10.000 clicks per page per day from 1.300 users. Most views were recorded between 9 am and 11 am on the main Proton channel, where all the plenary lectures were held. After the conference 268 accesses to the platform were noted.



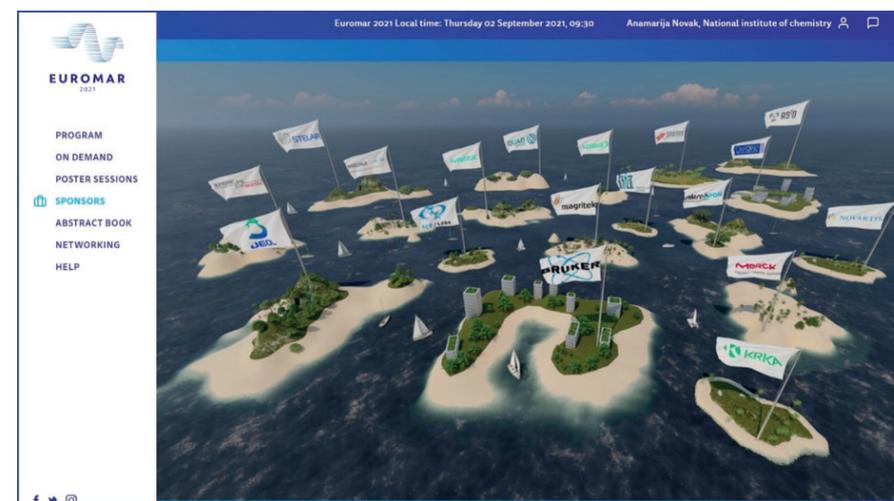
The conference comprised of 15 plenary, 53 invited, 62 promoted and 1 tutorial lectures on the following topics: Solution and solid state biomolecular NMR, Biomolecular dynamics, Integrated Structural biology: NMR in hand with complementary methods,

NMR in combat against COVID-19, Small molecules, Metabolomics, Field-cycling NMR relaxometry, NMR of quantum materials, Frontiers in magnetic resonance, MRI in material science and biomedical applications, Solids: From energy storage and conversion to organic and composite solids, Hyperpolarization, EPR in biomolecular and material science, In-cell magnetic resonance, Drug design, Methods Development, Benchtop and low-field.

In total 131 posters were presented. Each presentation on the platform included an abstract, a poster in pdf format and a 2 min video presentation. All posters were accessible during the entire conference as well one month after its closing under a special sidebar.

There were also 2 user meetings and 5 workshops presented by Bruker and Jeol, and 9 webinars presented by Magritek, Merck, Silantes, Oxford Instruments, RS2D, Quad System and Mikro+Polo.

Last but not least, special thanks go to the 18 sponsors who supported the organization of EUROMAR 2021 conference.



## Prizes

The Ampere Prize for Young Researchers is awarded biannually. The prize committee chooses the winner based on his/her achievements in the field of Magnetic Resonance. This year the prize went to Antoine Loquet, University of Bordeaux.

The Raymond Andrew Prize is awarded to young scientists for an outstanding PhD

thesis in magnetic resonance. The prize went to Reid Alderson, University of Oxford.

The Ernst Prize is meant to praise the achievements that are going beyond fundamental research, for ground-breaking applications of new or previously known techniques in all areas of magnetic resonance. The Ernst Prize Winners for 2021 are Jan Henrik Ardenkjaer – Larsen, University of Denmark and Lucio Frydman, Weizmann Institute of Science.

Elsevier Journal of Magnetic Resonance Young Scientist Award are given to graduate students or post-doctoral fellows, whose unsolicited submissions for an oral presentation have been selected based on excellence by the EUROMAR scientific program committee. This year the awards went to Sirine Nouri, University of Lyon; Qiang Li, Nankai University; Svetlana Pylaeva, University of Paderborn and Bruno Simoes de Almeida, Swiss Institute of Technology.

The International EPR (ESR) Society (IES) handed over the John Weil Young Investigator Award 2021 to Dr. Thomas Schmidt from the National Institutes of Health in Bethesda, USA.

The winner of the most popular poster at EUROMAR 2021 conference is Katerina Peterkova from the National Institute of Chemistry of Slovenia.

## Innovations

To break spending so much time in front of computers every day, the organizers introduced active breaks with guided exercises. During virtual breaks, 4-5 minute recordings of stretching exercises played 4 times a day, inviting participants to stretch and more easily follow the continuation of the conference program.

On Wednesday night, a traditional Bruker Night networking was organised. It also took place virtually, through a special platform prepared by Bruker. Despite the new circumstances, Bruker went to great lengths to attract as many attendees as possible.

To raise the experience of using the platform to an even higher level, the organizers designed a studio, from where two TV presenters moderated this year's conference. The studio was further used for live discussions (Q/A sessions) after every broadcasted session.

This year, the Book of abstracts was designed in a slightly different way and format, and was available to all participants in a virtual form.

## Conclusion

Despite the difficulties and organizational challenges brought on by the Covid-19

pandemic, the organizers are proud to have organised a well received and all-around praised EUROMAR 2021 conference, setting new trends and experiences for future organizations.



Organizing Committee  
September 2021

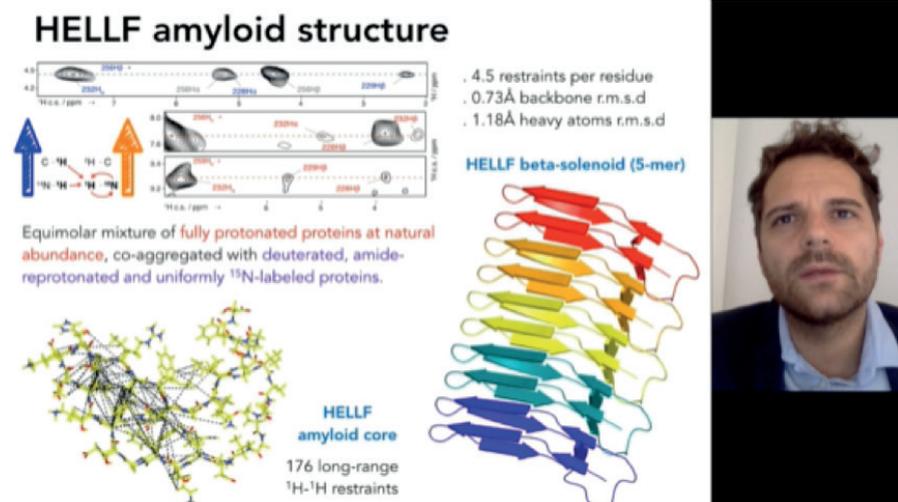
## AMPERE Prize for Young Researchers 2021

Antoine Loquet, University of Bordeaux

### Structural Biology of Protein Assemblies and Pathogen Cell Surface by Solid-State NMR Spectroscopy.

We will present the NMR activity carried out in the laboratory, focusing on recent and unpublished results:

- solid-state NMR-based structure determination of amyloid fibrils using  $^1\text{H}$  detection and  $^1\text{H}$ - $^1\text{H}$  distance restraints at fast magic-angle spinning;
- multidimensional  $^1\text{H}$ -detected solid-state NMR of protein assemblies at fast magic-angle spinning combined with DNP;
- development of  $^1\text{H}$  detection at fast magic-angle spinning to study the surface of pathogens.

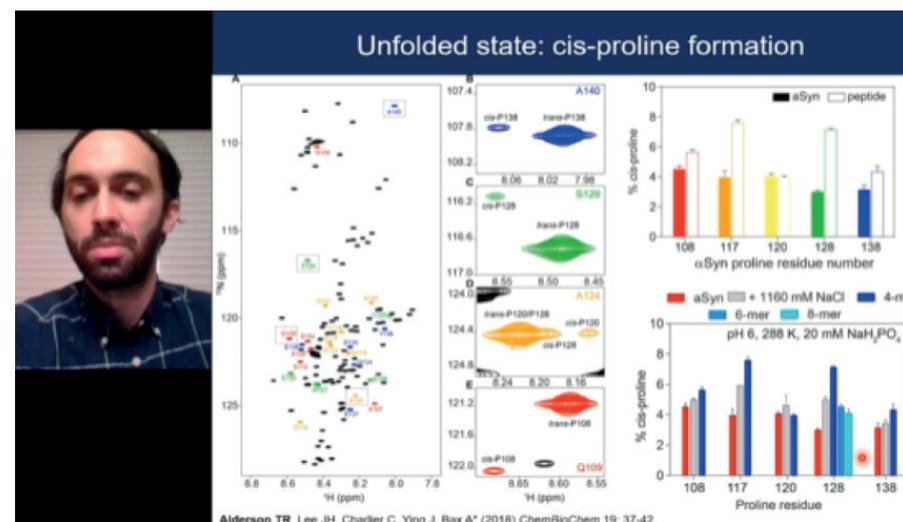


## Raymond Andrew Prize 2021

Reid Alderson, University of Oxford

### Protein Folding Investigated by NMR Spectroscopy.

In my thesis research, I used NMR spectroscopy, which simultaneously provides atomic-level insight into both the structures and dynamics of biomolecules, to investigate two fundamental aspects of biochemistry: how do proteins fold from linear chains of amino acids into complex three-dimensional structures, and how do the class of proteins known as molecular chaperones prevent pathological protein misfolding and aggregation? Dysregulated protein folding contributes to the etiology of protein misfolding diseases, including Alzheimer's, Parkinson's and type II diabetes. Understanding the precise molecular mechanisms that underpin these processes could guide the design of future therapeutics that help mitigate protein misfolding diseases. During my PhD, I determined a redox-controlled mechanism that regulates the function



of the molecular chaperone  $\text{HSP}_{27}$  [1, 2], and I elucidated the structural basis for mutations in  $\text{HSP}_{27}$  that cause incurable motor neuropathies [3]. I also contributed to the development of novel NMR methodology involving rapid pressure changes to study protein folding at atomic resolution on the millisecond timescale, enabling unprecedented insight into the early stages of folding and misfolding [4-6]. By performing complementary static pressure experiments, I quantified the compaction of an unfolded polypeptide chain as the difference in free energy between the unfolded and folded states is lowered

[7]. In natively unfolded and denatured proteins, I studied the formation of *cis*-proline bonds, which often must isomerize to the *trans* conformation before folding can occur, and I found that model peptides overestimate the fraction of the *cis* conformation [8]. Finally, I aided in the development of NMR software that automatically assigns methyl resonances from highly deuterated, selectively methyl- $^{13}\text{C}$  labeled proteins up to 1 MDa in aggregate mass, with assignments obtained based on a comparison of through-space experimental restraints (NOEs) and high-resolution structures [9, 10].

#### References:

[1] Alderson TR, Roche J, Gastall HY, Dias DM, Pritišanac I, Ying J, Bax A, Benesch JLP, Baldwin AJ, Nat. Commun., 2019, 10, 1068. [2] Alderson TR, Ying J, Bax A, Benesch JLP, Baldwin AJ, J. Mol. Biol., 2020, 432, 3033-3049. [3] Alderson TR, Adriaenssens E, Asselbergh B, Pritišanac I, Van Lent J, Gastall HY, Walti MA, Louis JM, Timmerman V, Baldwin AJ, Benesch JLP. EMBO J., 2021, 40, e103811. [4] Alderson TR, Charlier C, Torchia DA, Anfinrud P, Bax A, J. Am. Chem. Soc., 2017, 139, 11036-11039. [5] Charlier C, Alderson TR, Courtney JM, Ying J, Anfinrud P, Bax A, PNAS, 2018, 115, E4169-E4178. [6] Charlier C, Courtney JM, Alderson TR, Anfinrud P, Bax A, J. Am. Chem. Soc., 2018, 140, 8096-8099. [7] Ramanujan V, Alderson TR, Pritišanac I, Ying J, Bax A, J. Mag. Reson., 2020, 312, 106701. [8] Alderson TR, Lee JH, Charlier C, Ying J, Bax A, ChemBioChem, 2018, 19, 37-42. [9] Pritišanac I, Degiacomi MT, Alderson TR, Carneiro MG, Ab E, Siegal G, Baldwin AJ, J. Am. Chem. Soc., 2017, 139, 9523-9533. [10] Pritišanac I, Wurz JM, Alderson TR, Guntert P, Nat. Commun., 2019, 10, 4922.

#### Acknowledgements:

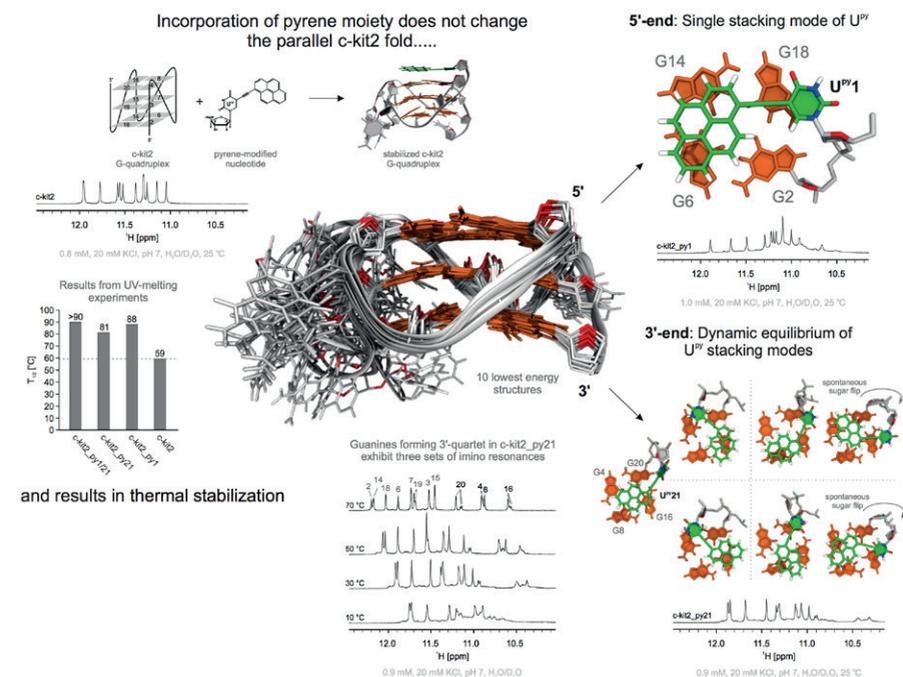
I am grateful to my supervisors, Dr. Ad Bax, Prof. Justin L. P. Benesch, and Prof. Andrew J. Baldwin for their support, advice, and inspiration during my thesis research. I thank Prof. Dame Carol V. Robinson and Dr. G. Marius Clore for sharing their laboratory facilities and reagents. I am indebted to Prof. Christina Redfield and Prof. D. Flemming Hansen for their careful examination of my thesis and for providing helpful corrections.

## Best poster selected by popular vote

Kateina Peterkova, National Institute of Chemistry of Slovenia

### c-kit2 G-Quadruplex Stabilized via a Covalent Probe: Exploring G-Quartet Asymmetry.

The KIT receptor is a transmembrane protein that participates in a variety of physiological processes [1]. Due to its role in the pathogenesis of cancer, KIT is an attractive target for anti-cancer treatment [2]. The human KIT proto-oncogene promoter contains three G-rich regions, c-kit1, kit\*, and c-kit2, which are capable of folding into G-quadruplexes. Importantly, the promoter segment comprising kit\* and c-kit2 contains a putative binding site for the Sp1 transcription factor, which can (apart from binding to a double-stranded consensus motif) bind to a G-quadruplex [3]. Considering that Sp1 binding is critical for the activity of the human KIT promoter [4], highly stable G-rich oligo-nucleotides mimicking G-quadruplexes from KIT could be used as decoys to sequester these proteins and modulate KIT expression.



Polyaromatic moieties can be employed for modulating G-quadruplex properties via their stacking with G-quartets. In this study, we focused on G12T/G21T mutant of the genomic c-kit2 sequence forming a monomeric three-quartet G-quadruplex, as a representative of parallel G-quadruplex structures found in human promoter regions. We showed that individual incorporation of U<sup>py</sup> (5-(1-pyrenylethynyl)-2'-deoxyuridine) in the pentaloop of c-kit2 caused structural polymorphism and in some cases also destabilization. On the other hand, the introduction of pyrene moieties to an individual or both termini of the c-kit2 sequence resulted in highly stable G-quadruplex structures. Although the parent parallel fold remained unchanged despite the terminal substitutions, a detailed analysis revealed major differences in structural dynamics of U<sup>py</sup> between the two terminal analogues. We believe that the contrast between structural dynamics of U<sup>py</sup>1 and U<sup>py</sup>21 might stem from an intrinsic asymmetry of c-kit2 G-quartets. This way U<sup>py</sup> acts as a probe for local G-quadruplex dynamics, which is true especially for c-kit2, where outer G-quartets are exposed and U<sup>py</sup> interactions with propeller loops are minimized. This is a vice-versa effect to the binding of ligands comprised of unfused aromatic rings to G-quadruplexes, where ligand planarity is key for efficient stacking.

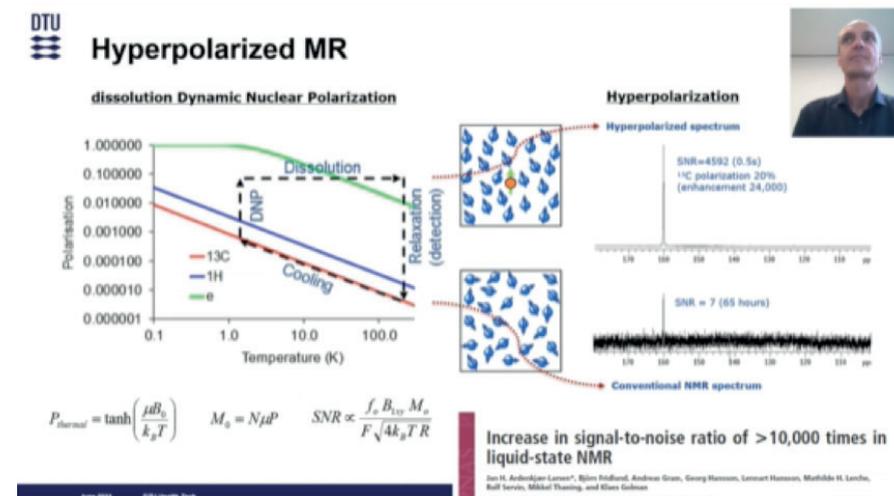
References: [1] C. E. Edling, B. Hallberg, *Int. J. Biochem. Cell Biol.* 2007, 39, 1995–1998. [2] L. K. Ashman, R. Griffith, *Expert Opin. Investig. Drugs.* 2013, 22, 103–115. [3] E. A. Raiber, R. Kranaster, E. Lam, M. Nikan; S. Balasubramanian, *Nucleic Acids Res.* 2012, 40, 1499–1508. [4] G. H. Park, H. K. Plummer, G. W. Krystal, *Blood.* 1998, 92, 4138–4149. Acknowledgments: This work was supported by the European Programme H2020 MSCA ITN [grant number 765266-LightDyNAmics project]. The authors also acknowledge financial support from the Slovenian Research Agency [grants P1-0242 and J1-1704]. The Ministry of Education, Youth and Sports of the Czech Republic (MEYS CR) is acknowledged for its support of access to research infrastructure (CEITEC 2020 LQ1601, CIISB: LM2018127, e-INFRA CZ: LM2018140).

## The Ernst Prize 2021

### 1. Jan Henrik Ardenkjaer – Larsen, University of Denmark

#### Dissolution Dynamic Nuclear Polarization.

Hyperpolarized Metabolic MR is a novel medical imaging modality that offers exceptional possibilities to follow changes in metabolism *in vivo* in real time [1]. The method is enabled by a more than 10,000 fold enhancement [2] of the signal from metabolic contrast agents that probe central metabolic pathways. The contrast agent is typically enriched in <sup>13</sup>C and polarized by dissolution Dynamic Nuclear Polarization (dDNP). The contrast agent circulates via the vasculature to the tissue of interest, where it is taken up by the tissue cells and metabolized into specific products. MR is unique in several ways: 1) it already provides anatomical and morphological images with high resolution and contrast based on the tissue water protons, 2) it does not expose the patient to any ionizing radiation, and 3) it is a spectroscopic method that allows quantification of the



individual metabolites. The first tracer in clinical development is <sup>13</sup>C-pyruvate. Pyruvate is at a pivotal point in glycolysis and allows us to directly probe the Warburg effect in cancer through the elevated lactate-to-pyruvate ratio, but also other pathologies. The hope is that more accurate diagnosis and staging can be made, and that the method will provide an early read-out of response to treatment. The first clinical studies have been published [3–6] with encouraging results.

In this talk I will review dDNP of <sup>13</sup>C and <sup>1</sup>H with trityl and UV radicals with the aim of

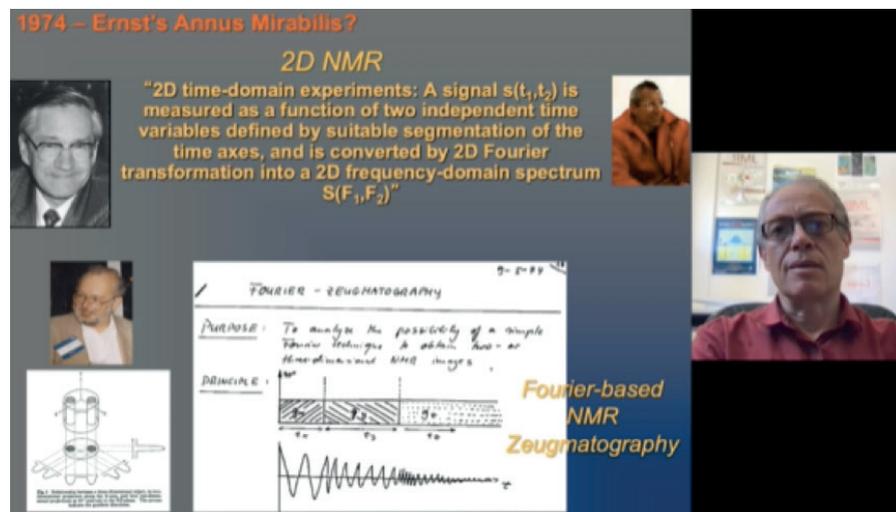
reaching higher polarization in a faster manner. Direct polarization of  $^{13}\text{C}$  with trityl is robust and efficient, however, subtle differences in the chemical structure of the trityl and change of matrix, affects the DNP efficiency. In contrast, UV radicals are labile, and quench in the solid state well below room temperature, which may provide a means to hyperpolarized solids with long relaxation for storage and transportation.

**References:** [1] J. Kurhanewicz, D.B. Vigneron, J.H. Ardenkjær-Larsen, et al., *Neoplasia* 2019, 21, 1–16; [2] J.H. Ardenkjær-Larsen, B. Fridlund, A. Gram, et al., *Proc. Natl. Acad. Sci. U. S. A.* 2003, 100, 10158–63; [3] S.J. Nelson, J. Kurhanewicz, D.B. Vigneron, et al., *Sci. Transl. Med.* 2013, 5, 198ra108; [4] C.H. Cunningham, J.Y. Lau, A.P. Chen, et al, *Circ. Res.* 2016, 116, 309769; [5] R. Aggarwal, D.B. Vigneron, J. Kurhanewicz, *Eur. Urol.* 2017, 72, 1028–1029; [6] V.Z. Miloushev, K.L. Granlund, R. Boltyanskiy, et al., *Cancer Res.* 2018.

**Acknowledgements:** Danish National Research Foundation (DNRF124).

## 2. Lucio Frydman, Weizmann Institute of Science

### Basking in Ernst's Legacy: Pulses, Spectra, Images



Even for those of us that never had the privilege to work with Richard Ernst (1937 – 2021), the man and his persona stand out among the greatest of our generation. In fact Ernst's greatness can probably be best appreciated by none better than us, the practitioners of Nuclear Magnetic Resonance. His experiments, his formalisms and derivations: they all carry a stamp of ingenuity, depth and rigorousness that is

typically Ernst's. Whether revisiting a previous proposition or making a completely new one, whether being the sole senior author or pushing the envelope of Science in a collaboration, most of us would recognize "an Ernst" just by reading its pages. In the present short talk I will present how three such classical "Ernsts" –the Ernst/Anderson pulsed approach to high resolution NMR, his proposition to collect 3D images non-invasively by Fourier NMR Zeugmatography, and the Jeener/Ernst proposition to unravel complex information by multidimensional NMR– have molded our own research. I will specifically focus on how pulsed NMR led us to propose an alternative way to collect 1D NMR spectra by spatiotemporal encoding, opening in turn the possibility to acquire arbitrary multidimensional NMR spectra / images in a single scan. The talk will center mostly on the latter's potential, highlighting ongoing preclinical and clinical projects dealing with understanding and diagnosing breast and pancreatic cancers, following fetal and neonatal development in normal and abnormal pregnancies, and tackling new functional / structural aspects of the brain with very high definition.

## Elsevier Journal of Magnetic Resonance Young Scientist Award 2021

### 1. Sirine Nouri, University of Lyon

#### Bacterial Type 1 Pili as a new Versatile Alignment Medium for NMR Spectroscopy.

The measurement of NMR Residual Dipolar Couplings (RDCs) is a powerful tool to gain information on atomic-level structure and dynamics of biomolecules. RDCs become measurable when a molecule is partially aligned with respect to the NMR magnetic field. To reach this partial alignment, a variety of anisotropic media such as bicelles, strained gels or filamentous phages can be used to induce predominantly steric or electrostatic alignment [1,2]. However, finding suitable alignment media compatible with various types of molecules and a broad range of experimental conditions remains a challenge.

Here we present a new liquid-crystalline alignment medium composed of purified type 1 pilus rods from *Escherichia coli*, which are filamentous protein polymers extending from the surface of the cell into the extracellular space [3,4]. Remarkably, under physiological conditions type 1 pilus rods have practically infinite kinetic stability against spontaneous dissociation/unfolding [5]. Using a recombinant system to elongate the wild-type pilus rod from an average length of ~670 nm to ~2100 nm, we show that alignment is achieved at a minimum pilus concentration of ~15 mg/ml, which together with a yield of ~17 mg pili obtained per liter of bacterial culture allows for efficient NMR sample

preparation. In agreement with the high stability of the pilus against denaturation, the alignment medium was stable at all temperature tested (4 - 50°C) and withstood challenging conditions such as pH 1.5, the presence of commonly used detergents and lipids (including 1% (w/v) SDS), or 50% (v/v) DMSO, DMF or methanol. To demonstrate the applicability of the type 1 pilus alignment medium, we measured RDCs of three different systems - a protein (human ubiquitin), an RNA (HIV-1 TAR) and a small organic molecule (camphor) - and show that in each case, experimental RDCs were highly correlated with RDC values back-calculated from high-resolution structures of these molecules. Overall the alignment induced by type 1 pili appears to arise mainly from steric interactions with a negative electrostatic contribution.

In summary, the pilus-based medium is compatible with challenging experimental conditions and is usable with both biological macromolecules and small organic molecules. These results suggest that type 1 pili should represent a very useful complement to existing alignment media and may assist molecular structure or dynamics determination by NMR.

#### References:

[1] M. Blackledge, *Prog. Nucl. Magn. Reson. Spectrosc.*, 2005, 46, 23-61. [2] J.R. Tolman, K. Ruan, *Chem. Rev.* 2006, 106, 1720-1736. [3] E. Hahn, P. Wild, U. Hermans, P. Sebbel, R. Glockshuber, M. Haner, N. Taschner, P. Burkhard, U. Aebi, S.A. Muller, *J. Mol. Biol.* 2002, 323, 845-857. [4] C. C. Brinton Jr, *Trans. N. Y. Acad. Sci.* 1965, 27, 1003-1054. [5] C. Puorger, O. Eidam, G. Capitani, D. Erilov, M.G. Grutter, R. Glockshuber. *Structure* 2008, 16, 631-42.

## 2. Qiang Li, Nankai University

### 4'-F Uridine-A Sensitive Label for Probing RNA Structure and Function by 19F NMR.

Due to the high sensitivity in chemical shift, the 100% natural abundance and the pronounced bioorthogonality of 19F, 19F NMR has been successfully used to investigate secondary structure and function of nucleic acids for more than a decade [1]. There are several main strategies in the field of fluorine-labeling, one of which is the introduction of fluorine(s) at sugar, usually C2'-position [2]. Among them, 2'-F-labeled RNA is powerful tool, but it directly affect ribose puckering [2].

Structurally, C4'-position should be an attractive modification site in 19F-labeling. First of all, C4'-substitutions locate on the edge of the minor groove upon duplex formation, with no significantly affecting the helical conformation [3]. Secondly, C4'-position is a member of the phosphate backbone (P-O5'-C5'-C4'-C3'-O3'-P-1) which has directly interactions with proteins, such as cGAS and ribonucleases. Unfortunately, due to the instability of 4'-F-modified nucleosides, scientists have not successfully

introduced them into the RNA strands [4]. The phenomenon, cleavage of glycosidic bonds in conventional experimental solutions, is the main reason for limiting its continued research.

Herein, we reported a more mature strategy through a selective protection of the hydroxy groups in stages to synthesize 4'-F-modified uridine phosphoramidite monomers, which was stable enough to then be incorporated into longer oligonucleotides through standard solid-phase synthesis. Therefore, we incorporated U4'-F into oligos and investigated their biophysical and biochemical properties. The 4'-F modification does not significantly alter the nature of RNA and therefore can mimic the state of native RNA for structural studies. 19F NMR results show that this modification can not only distinguish between ssRNA and dsRNA, but also identify mismatches and binding of RNA-processing proteins with chemical shift dispersion up to 4 ppm, indicating that this modification can be widely used through NMR spectroscopy for determination various RNA structures [5].

References: [1] H. Chen, L. Peng, et. al, *Chem Soc Rev* 2013, 42, 7971-7982. [2] K. Christoph, M. Ronald, *J Am Chem Soc* 2005, 127, 1158-11559. [3] D. Summerer, A. Marx, *J Am Chem Soc* 2002, 124, 910-911. [4] L. Seongmi, V. Gregory, *Org Lett* 2007, 9, 5007-5009. [5] Q. Li, J. Plavec, C. Zhou, *J Am Chem Soc* 2020, 142, 4739-4748.

Acknowledgements: This work was supported by the National Natural Science Foundation of China (Grant Nos. 91953115, 21877064, and 21740002) and by the Slovenian Research Agency (ARRS, Grant Nos. P1-0242 and J1-1704).

## 3. Svetlana Pylaeva, University of Paderborn

### Mixed-Valence Polarizing Agents for Efficient Overhauser Effect DNP in Insulating Solids at High Magnetic Fields.

Overhauser effect DNP in insulating solids [1] has a number of beneficial properties for applications: it requires less microwave power than other methods, the enhancement was shown to scale favourably with magnetic field strength [2].

Mixed-valence character of the BDPA radical was recently investigated using state-of-the-art quantum-chemistry methods. We have vigorously proven that the radical belongs to a specific class of mixed valence compounds: spin density is localized on one part of the molecule, but can tunnel to the other side with a frequency in a range of hundreds of GHz [3]. Interestingly, same conclusions for BDPA were reached in 1975 by Watanabe et al. [4].

Now we have performed theoretical scanning of large number of mixed-valence molecules, looking for ones with properties similar to those of the BDPA (g-tensor anisotropy, large values of hyperfine coupling constants, similar electron transfer rate).

Those molecules have been then synthesized and investigated by high field EPR. Their DNP field profiles were measured at 18.8 Tesla (527 GHz) at 100 K in tetrachloroethane (90D:10H) matrix under 8kHz MAS, concentration of the radicals was 10 mM. We have indeed observed large signal enhancement for all three radicals when irradiated on EPR resonance. Other properties of the signal, such as MAS and microwave power dependence are similar to the BDPA [5].

Our finding opens a whole class of mixed-valence radicals to prospective applications as polarizing agents at ultra-high magnetic fields. Organic mixed-valence compounds make up a large and well-studied group of molecules, their versatile nature allows for adaptation for various applications.

References: [1] T. V. Can, M. A. Caporini, F. Mentink-Vigier, B. Corzilius, J. J. Walsh, M. Rosay, W. E. Maas, M. Baldus, S. Vega, T. M. Swager, R. G. Griffin, *J. Chem. Phys.* 2014, 141, 064202. [2] M. Lelli, S. R. Chaudhari, D. Gajan, G. Casano, A. J. Rossini, O. Ouari, P. Tordo, A. Lesage, L. Emsley, *L. J. Am. Chem. Soc.* 2015, 137, 14558. [3] S. Pylaeva, P. Marx, G. Singh, T. D. Kühne, M. Roemelt, H. Elgabarty, *J. Phys. Chem. A*, 2021, 125, 867. [4] K. Watanabe, J. Yamauchi, H. Ohya-Nishiguchi, Y. Deguchi, K. Ishizu, *Bull. Inst. Chem. Res., Kyoto Univ.* 1975, 53(2), 161. [5] A. Gurinov, B. Sieland, A. Kuzhelev, H. Elgabarty, T. D. Kuehne, T. Prisner, J. Paradies, M. Baldus, K. L. Ivanov, S. Pylaeva, *Angew. Chem. Int. Ed.* 2021, <https://doi.org/10.1002/anie.202103215>.

Acknowledgements: This work has been supported by iNEXT-Discovery, grant number 871037, funded by the Horizon 2020 program of the European Commission.

#### 4. Bruno Simoes de Almeida, EPFL Lausanne

##### Resonances in <sup>1</sup>H Mas Spectra are not Centered at the Isotropic Chemical Shift.

In solid-state NMR, the homonuclear dipolar coupling is the internal spin interaction that has the greatest contribution to the broadening of the <sup>1</sup>H spectral lines. Even at the fastest magic-angle spinning rates available today [100 kHz-150 kHz], the linewidths can extend over hundreds of Hertz, affecting <sup>1</sup>H resolution. Understanding and minimizing this contribution could lead to rich structural information for organic solids. In the past, systems of two and three spins were studied with Average Hamiltonian Theory [1] (AHT) to second order and Floquet Theory [2-3]. Here we study two and three inequivalent spin systems ( $I=1/2$ ) with AHT, in the fast-spinning regime, and we develop analytical expressions of the average Hamiltonian to 3rd order.

The results show that the full expression of the 3<sup>rd</sup> order average Hamiltonian, without secular approximation or truncation to second-order, agrees the best with full numerical calculations.

We find that the effect on the NMR spectrum of the different Hamiltonian terms, is to produce both MAS rate dependent residual shifts and splittings in the three-spin case. Powder lineshapes are also analyzed, and it is found that the anisotropic residual shift does not have zero average, indicating that the lineshape is broadened and shifted from

the isotropic position, and we confirm this with experimental observations for <sup>1</sup>H MAS spectra in molecular solids [4-5].

References: [1] M. M. Maricq, J. S. Waugh, *J. Chem. Phys.* 1979, 70, 3300-3316. [2] M. H. Levitt, D. P. Raleigh, F. Creuzet, R. G. Griffin, *J Chem Phys* 1990, 92, 6347-6364. [3] Nakai, C. A. McDowell, *J Chem Phys* 1992, 96, 3452-3466. [4] P. Moutzouri, F.M. Paruzzo, B. S. de Almeida, G. Stevanato, L. Emsley, *Angewandte Chemie* 2020, 59(15), 6235-6238 [5] P. Moutzouri, B. Simoes de Almeida, L. Emsley, *J Magn. Reson.* 2020, 321, 106856.

Acknowledgements: EPFL- Laboratory of Magnetic Resonance, Swiss National Science Foundation Grant No. 200020\_178860.

## John Weil Young Investigator Award 2021

### Dr. Thomas Schmidt, National Institutes of Health in Bethesda

#### Accessing Calmodulin Binding Nonequilibrium Kinetics by EPR Dipolar Spectroscopy.

As the cell's prototypical Ca<sup>2+</sup> sensor, calmodulin (CaM) is responsible for amplifying and adapting this universal signal into specific downstream signals via interactions with numerous target proteins in a calcium-dependent manner. This biological adaptability correlates with the significant structural plasticity that has been observed in CaM. Here, the interaction of CaM and its 26-residue binding partner, M13, was probed on the millisecond time scale. The interaction mechanism is well established and, hence, serves as a model to evaluate the nonequilibrium kinetics by EPR dipolar spectroscopy. Our method uses a combination of selective protonation/deuteration [1], rapid mix and subsequent rapid freeze-quench [2] along the CaM and M13 reaction coordinates. Further, the acquisition of T<sub>m</sub>-edited DEER [3] and subsequent processing by 2D SF-SVD enable detailed description of conformational components. The interaction between CaM and M13 gives rise to two intermediates originating from the initial interaction event (2 ms) and the coordination of the N- and C-terminal domains (8 ms) in addition to its halo- and fully bound state. The presented technique can be expanded to a wide range of molecular systems to answer questions of protein folding and domain coordination.

References: [1] R. Ward, A. Bowman, E. Sozudogro, H. El-Mkami, T. Owen-Hughes, D. Norman *JMR.* 2010, 207, 164-167. [2] T. Schmidt, J. Jeon, Y. Okuno, S.C. Chiliveri G.M. Clore *Chem. Phys. Chem.* 2020, 120, 356-365. [3] T. Schmidt, G.M. Clore, *Chem. Com.* 2020, 56, 10890-10893.

## Report: ICMRM 2021

The 16<sup>th</sup> International Conference for Magnetic Resonance Microscopy (ICMRM) was held as an online meeting 3-4 August 2021 with focus on oral presentations from six PhD students and postdocs competing for the Paul Callaghan Young Investigator Award as well as two plenary and eight invited lectures. As always, the ICMRM was organized under the auspices of the Spatially Resolved Magnetic Resonance (SRMR) division of the AMPERE society and this year received sponsorship from Bruker and Chalmers University of Technology. Originally planned to be held 1-5 August 2021 in Malmö, Sweden, as a traditional physical conference including educational lectures, contributed talks, poster sessions, and an extensive social program, the ongoing COVID-19 pandemic necessitated the transition to an online format. With inspiration from the well-received EUROMAR 2020, the SRMR executive committee chose the format of a free-of-charge Zoom webinar covering two half-days, thus enabling reasonably convenient participation across most of the globe. The meeting attracted 266 registered participants (185 unique e-mail addresses logging in) from 31 countries dominated by USA, Germany, UK, China, and Canada.

### Conference Chairs

Diana Bernin (Chalmers University of Technology, Sweden), Daniel Topgaard (Lund University, Sweden)

### Local committee

Patric Kvist (Chalmers University of Technology, Sweden)

### Session Chairs

Melanie Britton (University of Birmingham, UK), Luisa Ciobanu (Neurospin/CEA, France), Shaoying Huang (Singapore University of Technology and Design), Daniel Topgaard (Lund University, Sweden), Diana Bernin (Chalmers University of Technology, Sweden), Peter Basser (NIH, USA)

### Plenary lectures

1. Clare Grey (University of Cambridge, UK), New magnetic resonance methods for studying batteries in and ex situ
2. Klaas Prüssmann (ETH Zürich, Switzerland), Mummies and myelin: Current efforts in short-T2 imaging

### Invited lectures

1. Carl Michal (University of British Columbia, Canada), Low-field NMR and MRI: A D.I.Y. journey
2. Gisela Guthausen (Karlsruhe Institute of Technology, Germany), MRI in chemical

engineering: The impact of mechanical forces on material properties

3. Jonas Kind (Technical University of Darmstadt, Germany), Coffee stains, euro bills and NMR spectroscopy – or Examination of droplet evaporation using NMR and MRI
4. Marion Menzel (Technical University of Munich, Germany), Quantitative, multiparametric MRI using MR Fingerprinting concepts
5. Martin Bruschewski (University of Rostock, Germany), Fluid mechanics experiments at high Reynolds number with MRI
6. Maja Musse (INRAE Bretagne-Normandie, France), MRI relaxometry in food science
7. Manisha Aggarwal (Johns Hopkins University School of Medicine, USA), Diffusion microimaging and brain tissue microstructure
8. Samuel Grant (Florida State University and NHMFL, USA), MR microscopy at 21.1 T and above: ex and in vivo experiences

### Paul Callaghan Young Investigator Award (PCYIA) Competition

1. James Eills (University of Mainz, Germany), Singlet-contrast imaging for hyperpolarized MRI
2. Jiangfeng Guo (University of New Brunswick, Canada), Laminar flow characterization using low-field magnetic resonance techniques
3. Magdoom Mohamed Kulam Najmudeen (NIH, USA), A new approach to mesoscopic brain imaging using diffusion tensor distribution (DTD) MRI
4. Neil Robinson (University of Western Australia, Australia), Functional group resolved nuclear spin relaxation in porous media
5. Gonzalo Gabriel Rodriguez (University of Córdoba, Argentina), Fast field-cycling MRI: Exploring new physical contrasts
6. Vencel Somai (University of Cambridge, United Kingdom), Numerical optimization of MRI pulse sequences

### PCYIA Winner

Gonzalo Gabriel Rodriguez (University of Córdoba, Argentina)

### PCYIA Jury

Diana Bernin (Chalmers University of Technology, Sweden), Luisa Ciobanu (Neurospin/CEA, France), Gisela Guthausen (Karlsruhe Institute of Technology, Germany), Carl Michal (University of British Columbia, Canada), Thomas Oerther (Bruker BioSpin, Germany)

### SRMR Executive Committee

Chair: Melanie Britton (UK)

Vice Chair: Peter Basser (USA)

Treasurer: Andrew Sederman (UK)

Secretary General: Volker Behr (Germany)

Vice Secretary General: Sarah Codd (USA)

Conference Chairs: Diana Bernin (Sweden) and Daniel Topgaard (Sweden)  
Past Chair: Mike Johns (Australia)  
Past-Conference Chairs: Luisa Ciobanu (France) and Dimitris Sakellariou (Belgium)  
Advisors: Eiichi Fukushima (USA), Lizhi Xiao (China), Bernhard Blümich (Germany), Igor Koptuyug (Russia), Henk Van As (Netherlands)

Diana Bernin and Daniel Topgaard  
August 2021



## Minutes of the meeting of the Ampere Bureau

online, on Friday, June 25<sup>th</sup> 2021

### Members present (12):

B. Blümich, A. Böckmann, G. Bodenhausen, M. Britton, J. Dolinšek, M. Ernst, S. Hiller, A. Kentgens, B.H. Meier, H. Oschkinat, J. Plavec, T. Prisner

### Excused (2):

G. Otting, J. van Duynhoven,

### Agenda:

1. Approval of the agenda
2. Approval of the minutes of the AMPERE Bureau meeting Online March 18, 2021
3. Report on the state of the AMPERE Society (B. Blümich)
4. Financial Report (M. Ernst)
5. Preparation of AMPERE Bureau elections (M. Ernst/B. Blümich)
6. Preparation of AMPERE Committee elections (M. Ernst/B. Blümich)
7. Past and future meetings:
  - EUROMAR Portoroz/Online 2021 and Utrecht 2022 (T. Prisner)
  - Biosolids School, Berlin/Online 2021 (H. Oschkinat)
  - HYP 2021 Lyon (G. Bodenhausen)
8. Open-access magnetic-resonance journal (G. Bodenhausen)
9. AMPERE Video Library (S. Hiller)
10. Varia (M. Ernst)

### At 12:00 hours, Matthias Ernst opened the meeting.

**Ad 1.** The agenda was approved as is.

**Ad 2.** The minutes of the previous AMPERE Bureau meeting were approved unanimously.

**Ad 3.** B. Blümich commemorates the colleagues that passed away in the past year. These are on the one hand Dieter Michel from Leipzig and Jiri Spevacek from Prague. The society also remembers Konstantin Ivanov, who fell victim to COVID-19 at the young age of 44. Richard Ernst, who passed away 2 weeks ago is a big loss to the society. He had a gigantic impact on many and on the development of the NMR field as such.

In the past months, a substantial number of conferences has happened strictly online.

Fortunately, it seems that the pandemic restriction release and now a few conferences can begin again to be held onsite. As a result, the society is now much better prepared for online events. Many organizers have learned from the challenges and considerable experience has been built.

B. Blümich congratulates the founders of *Magnetic Resonance* to having built up this the society journal, which becomes more and more successful. He also notes that the AMPERE society has its 70<sup>th</sup> anniversary this year. Unfortunately, the pandemic prevents larger celebrations. B. Blümich reminds of the upcoming election procedure. According to the statutes, the General Assembly elects the Committee and the Committee elects the Bureau. B. Blümich thanks Beat Meier, Sabine van Doorslaer, Rob Kaptein, Mark Smith for their work in the AMPERE prize committee. The former three have now stepped down and will be replaced by new members.

G. Bodenhausen suggest that a new division might be formed that supports online conferences. The Bureau supports this notion. B. Blümich encourages the chairs of the last three conferences to share their experience with the chairs of the new conferences.

J. Plavec acknowledges the multiple help Euromar 2021 received from O. Millet, H. Oschkinat, and others. He is already in touch with the next organizers.

**Ad 4.** M. Ernst presented the financial report of the past 2 years. Finances are continuing to be stable and have even slightly gone up with the stock market. The financial situation of all subdivisions is stable and partially very positive. The society is in a very healthy state.

**Ad 5.** Elections. The terms of President B. Blümich, Vice Presidents A. Böckmann and J. Dolinšek had ended in 2020. Their terms had been extended by 1 year due to the pandemic and the successors will be elected next week at the committee meeting. Sole candidate for president is A. Böckmann, candidates for vice presidents are J. Dolinšek, K. Saalwächter, P. Giraudeau, and for honorary member S. Jurga. For the price committee president, B. Blümich is the sole nominee. As additional price committee members run M. Smith, A. Pastore, H. Oschkinat, A. Jerschow, and E. Bordignon. The election shall be held anonymously using the zoom election tool. It is discussed whether honorary members should be elected for lifetime. But since they become honorary society members for lifetime, it makes sense to have them as honorary Bureau members only for a limited term. So everything stays as it is in this regard. The Bureau discusses whether there should be 2 or 3 vice presidents. This will be decided by the committee. The Bureau will suggest the committee to elect two vice presidents. S. Jurga's term as honorary member of the Bureau shall be renewed, while H.-W. Spiess will be nominated for lifetime honorary members of the society.

**Ad 6.** M. Ernst has asked the AMPERE committee members whose terms ended in 2020/2021, whether they would want to run for another term or not. S. v. Dorslaer steps down, Ashbrook, Boelens, Chizhik, Dolinšek, Felli, Giraudeau, Kozminski, Telkki,

Thiele, Topgaard all agreed to another term. No response was so far received from Banys, Konrat, Pons, Simon, Spyroulias. M. Ernst will contact them again for a second response. In addition, we would aim for additional members from countries with large communities. These are Jörg Matysik for Germany, Danielle Laurencin from France, Markus Weingarth, Marcellus Ubbink, Klaartje Houbne, or Camilla Terenzi for the Netherlands, Jadwiga Tritt-Goc or Danuta Krug or both for Poland, Annalisa Pastore from UK, Roberta Pieratelli or Roberta Sesolli, or Naomi Proietti from Italy, P. Schanda from Austria, Mariano Sardo from Portugal. At the meeting of the AMPERE Committee suggestions to the AMPERE General Assembly have to be finalized.

#### **Ad 7.** Conference reports

- J. Plavec presents the status of Euromar 2021. Registered attendance is large. Euromar will run a full program. Many talks and posters have been submitted. There will be three parallel channels with talks and discussions. Posters are online, talks are pre-recorded and submitted. The financial situation has stabilized and budget will come out somewhere around zero. Gratefully, sponsors are now coming in and organizers are slightly optimistic that they will end without deficit.

- T. Prisner reports that M. Baldus is already very active for organizing the Euromar in Utrecht in July 2022. It is planned as a physical hybrid meeting. Euromar 2023 will be in Glasgow.

- H. Oschkinat reports on the biosolids school, which finished a week ago. The second part was originally supposed to be in Berlin but was then held online. Slack was used for Questions and answers. There was an online get-together on Sunday, which was attended mainly by lecturers. Also, for the dinner, lecturers stayed, but not students. Overall feedback was positive. Organizers learned that one needs to develop skills on how to keep people involved during online lectures. Some speakers captured the audience well with calculations and questions and tasks during the talk. Parallel zoom and poster session worked quite well, eventhough there could have been more posters. Slack channel worked out well. The next biosolids school will be in Denmark summer 2023.

- G. Bodenhausen reports on HYP 2021 in Lyon. The meeting is well booked, well organized, and soundly funded. The number of participants has been restricted to 100. It will hopefully be the first in person meeting since a long time. Sponsors are on board.

**Ad 8.** G. Bodenhausen reports on the Magnetic Resonance journal. The development is generally very positive, already about 50 manuscripts were submitted this year. Besides that, people need to get used to some new habits. Not all articles can be accepted and some authors are annoyed when their articles get rejected. In the meeting of the executive editors, it was discussed to which extent there should be special issues in the journal. There have already been 2 of them, one in honor of Rob Kaptein and one in honor of Geoffrey Bodenhausen. The majority of editors however decided that there should be no further special issue on behalf of individuals. There could be though

special issues on topics. Magnetic Resonance will receive its first impact factors after 2–3 years of publishing.

**Ad 9.** S. Hiller reports on the Ampere video collection. Four videos have arrived and are published on the Youtube channel. Another thirty videos have been promised by various authors. The committee hopes to have around 10 videos by summer and would then go live.

**Ad 10.** There were no Varia.

The meeting closed at 14:40.

Basel / the internet, 25 June 2021  
Sebastian Hiller

## Minutes of the meeting of the Ampere Committee online, on Monday, June 28<sup>th</sup> 2021

### Members present (24):

B. Blümich, A. Böckmann, J. Dolinsek, M. Ernst, S. Hiller, J. van Duynhoven, G. Bodenhausen, H. Oschkinat, T. Prisner, A. Kentgens, B.H. Meier, R. Boelens, I. Felli, A. Gil, P. Giraudeau, K. Jaudzems, M. Pons, I. Reile, F. Rise, G. Spyroulias, V.-V. Telkki, C. Thiele, D. Topgaard, P. Vasos, J. Plavec

### Excused (16):

M. Britton, Y.-Q. Song, G. Otting, S. Jurga, H.-W. Spiess, S. Ashbrook, J. Banyas, V. Chizhik, P. Crowley, R. Konrat, W. Kozminski, B. Kragelund, P. Novak, S. Ruthstein, F. Simon, S. van Doorslaer

### Agenda:

1. Approval of the agenda
2. Approval of the minutes of the AMPERE Committee meeting  
Online September 11, 2020
3. Report on the state of the AMPERE Society (B. Blümich)
4. Financial report to be presented at the General Assembly (M. Ernst)
5. Elections for the AMPERE Bureau (M. Ernst, B. Blümich)
6. Elections for the Prize Committee (M. Ernst)
7. Preparation of Committee Elections at GA (M. Ernst, B. Blümich)

8. Varia

### At 12:00 hours, Matthias Ernst opened the meeting.

**Ad 1.** The agenda was approved as is.

**Ad 2.** The minutes of the previous AMPERE Bureau meeting were approved unanimously.

**Ad 3.** B. Blümich commemorated the colleagues that passed away in the past year. These are Dieter Michel from Leipzig, Jiri Spevacek from Prague, Konstantin L. Ivanov, who sadly fell victim to COVID-19 at the young age of 44, and Richard R. Ernst, whose passing is a big loss to the society. He had a gigantic impact on many and on the development of the NMR field as such.

On the occasion of the end of his presidency, B. Blümich remembered key developments of the past years. The AMPERE tree was introduced in 2014, the statutes revised in 2016 to ensure turnover of the Committee and Bureau, the AMPERE prize was revised in 2016, the hyperpolarized magnetic resonance division founded in 2016. Competitive funding of AMPERE events was introduced in 2018, and the publication division with the journal Magnetic Resonance was founded in 2019. The Chamonix Alpine conference might become a full part of the AMPERE tree in the future and the SPINUS conference is a potential follow-up.

In the past months, a total of five of the AMPERE conferences have happened strictly online. Fortunately, it seems that the pandemic restriction release and a few conferences can begin again to be held onsite, starting hopefully with the Lyon conference in September. As a result of this particular time, the society is now much better prepared for online events. Many organizers have learned from the challenges and considerable experience has been built. B. Blümich encouraged organizers to communicate between the conferences to learn from each other's experiences. He invites the experienced organizers to share their advice in writing to the Secretary General with the organizers of upcoming conferences. B. Blümich reminds of the upcoming election procedure. According to the statutes, the General Assembly elects the Committee and the Committee elects the Bureau. B. Blümich thanked Beat Meier, Sabine van Doorslaer, Rob Kaptein, Mark Smith for their work in the AMPERE prize committee. The former three have now stepped down and will be replaced by new members. To conclude, B. Blümich acknowledged the society and underlines that it was a pleasure for him to serve the community.

M. Ernst thanked B. Blümich in the name of the society for his service.

**Ad 4.** M. Ernst presented the financial report of the past 2 years. Finances are continuing to be stable and have even slightly gone up with the stock market. The financial situation of all subdivisions is stable and partially very positive. The society is in a very healthy

state. The society decided to give 10.000 EUR to Euomar 2022 to allow very low student prices for the online meeting.

**Ad 5.** Elections. The terms of President B. Blümich, and of Vice Presidents A. Böckmann and J. Dolinšek had ended in 2020 with an extension by 1 year due to the pandemic. A. Böckmann was elected unanimously as new president and she accepted the election. The Committee elected J. Dolinšek and P. Giraudeau as vice presidents of the society and both accepted the election.

**Ad 6.** For the new president of the price committee, B. Blümich was the sole nominee, and no further proposals were made by the Committee. B. Blümich was elected unanimously as president of the price committee and he accepted the vote. M. Smith, A. Pastore, H. Oschkinat, A. Jerschow, and E. Bordignon were confirmed by the Committee as members of the prize committee.

S. Jurga and B.H. Meier were elected as honorary members of the Bureau. B.H. Meier accepted the vote. S. Jurga was elected in absence and will be asked. H.-W. Spiess was elected in absence as lifetime honorary members of the society.

**Ad 7.** Among the AMPERE committee members whose terms ended in 2020/2021, Ashbrook, Boelens, Chizhik, Dolinšek, Felli, Giraudeau, Kozminski, Pons, Spyroulias, Telkki, Thiele, Topgaard all agreed to another term. S. v. Dorslaer stepped down. The committee nominated new members for election by the general assembly from the countries with vacancies, as well as additional members from countries with large communities. Nominated candidates were Jörg Matysik for Germany, Giulia Mollica for France, Klaartje Houben for the Netherlands, Jadwiga Tritt-Goc for Poland, Annalisa Pastore for UK, Giacomo Parigi for Italy, Paul Schanda for Austria, Mariana Sardo for Portugal, L. Trantirek for Czechia, Jose Martins for Belgium, Katalin Köver for Hungary. A Lithuanian candidate shall be identified by the other Baltic members and communicated as soon as possible. All candidates will be asked if they are up for election by M. Ernst and elections will be held at the AMPERE General Assembly.

**Ad 8.** It is discussed how the income from the journal are shared. The Copernicus publishing house gives a certain share of the page charges to the society. It is agreed that this income is shared 50%/50% between the society and the publishing subdivision. The distribution will be reassessed subsequently.

The meeting closed at 13:25.

Basel / the internet, 28 June 2021  
Sebastian Hiller

## Minutes of the meeting of the Ampere General Assembly online, on Wednesday, June 30<sup>th</sup> 2021

### Members present:

B. Blümich, A. Böckmann, M. Ernst, S. Hiller, M. Smith, I. Geru, S. Jurga, G. Bodenhausen, F. Capozzi, D. Bernin, E. Fukushima, H. van As, H. Oschkinat, C. Arns, R. Boelens, R. Pieratelli, M. Britton, A. Mohoric, I. Koptuyug, B. Endeward, M. Küppers, S. Stapf, D. Topgaard, C. Schmidt, T. Meersmann, Sonia, S. Haber-Po, G. Tastevin, R. Acosta, S. Aravmudhan, J. Dolinšek, M. Kucherov, V. Chizhik, J. Tritt-Goc, L. Kimtys, S. van Doorslaer, P. Vasos, J. Plavec, G. Spyroulias, Laila, A. Simion, I. Felli, E. Reile, T. Prisner, K. Köver, K. Saalwächter, B. Meier, O. Millet, S. Ruthstein, J. Ardenkjær-Larsen

### Agenda:

1. Approval of the agenda
2. Approval of the minutes of the AMPERE General Assembly in Berlin August 27, 2019
3. Report on the state of the AMPERE Society (B. Blümich)
4. Financial report and approval (M. Ernst)
5. Report on AMPERE Bureau elections (M. Ernst)
6. AMPERE Committee elections (M. Ernst)
7. Closing remarks (elected president A. Böckmann)
8. Varia

### At 15:00 hours, Matthias Ernst opened the meeting.

**Ad 1.** The agenda was approved as is.

**Ad 2.** The minutes of the previous AMPERE General Assembly were approved unanimously.

**Ad 3.** B. Blümich commemorated the colleagues that passed away in the past year. These are Dieter Michel from Leipzig, Jiri Spevacek from Prague, Konstantin L. Ivanov, who sadly fell victim to COVID-19 at the young age of 44, and Richard R. Ernst, whose passing is a big loss to the society. He had a gigantic impact on many and on the development of the NMR field as such. B. Blümich also remembered the colleagues that passed in the time range since 2012 and that continue to be missed by the society. On the occasion of the end of his term, B. Blümich highlighted key developments of his presidency. The AMPERE tree was introduced in 2014, the statutes revised in 2016 to ensure turnover of the Committee and Bureau, the AMPERE prize was revised in 2016, the hyperpolarized magnetic resonance division founded in 2016. Competitive funding

of AMPERE events was introduced in 2018, and the publication division with the journal Magnetic Resonance was founded in 2019. B. Blümich thanked G. Jeschke and M. Ernst for their work on the website and the bulletin.

In the past months, a total of five of the AMPERE conferences has happened strictly online. Fortunately, it seems that the pandemic restriction release and now a few conferences can begin again to be held onsite, starting hopefully with the Lyon conference in September. As a result of the pandemic, the society is now much better prepared for online events. Many organizers have learned from the challenges and considerable experience has been built. B. Blümich also reminded us of the 70th anniversary of the society in 2021 which can unfortunately be celebrated only with minimal intensity due to the pandemic.

B. Blümich reviewed the governance structure of the society. According to the statutes, the General Assembly elects the Committee and the Committee elects the Bureau. In the recent elections, A. Böckmann has been elected new president of the AMPERE society. J. Dolinšek and P. Giraudeau have been elected as vice presidents. H.-W. Spiess has been elected lifetime honorary member of the society and S. Jurga and B. Meier elected as honorary members of the Bureau AMPERE. B. Blümich has been elected chair of the AMPERE prize committee and M. Smith, A. Pastore, H. Oschkinat, A. Jerschow, and E. Bordignon as prize committee members.

B. Blümich thanked Beat Meier, Sabine van Doorslaer, Rob Kaptein, Mark Smith for their past work in the AMPERE prize committee. To conclude, B. Blümich acknowledged the collaboration with M. Ernst, the society as a whole and underlines that it was a pleasure for him to serve the community. M. Ernst thanked B. Blümich in the name of the AMPERE society for his service.

**Ad 4.** M. Ernst presented the financial report of the past 2 years and discussed key details. Finances are continuing to be stable and have even slightly gone up with the stock market. The financial situation of all subdivisions is stable and partially very positive. The society is in a very healthy state. The financial report was unanimously approved by the members present.

**Ad 5.** M. Ernst reported on the recent elections for the AMPERE Bureau. A. Böckmann was elected new president, J. Dolinšek and P. Giraudeau as vice presidents. B. Blümich was elected as president of the prize committee and M. Smith, A. Pastore, H. Oschkinat, A. Jerschow, and E. Bordignon as members of the prize committee. S. Jurga and B. Meier were elected as honorary Bureau members and H.-W. Spiess as lifetime honorary members of the society.

**Ad 6.** M. Ernst explained the current composition of the AMPERE committee and the nominees for additions. Four committee members are retiring and are acknowledged for their service: Banys, Konrat, Simon, van Doorslaer. 12 members are nominated for a second term starting nominally in 2020 or 2021. These are Ashbrook, Boelens, Chizhik,

Dolinšek, Felli, Giraudeau, Kozminski, Pons, Spyroulias, Telkki, Thiele, Topgaard. In addition, as new candidates are nominated Paul Schanda for Austria, Jörg Matysik for Germany, Klaartje Houben for the Netherlands, Annalisa Pastore for UK, Giacomo Parigi for Italy, Mariana Sardo for Portugal, Jose Martins for Belgium, Jadwiga Tritt-Goc for Poland, Lukas Trantirek for Czechia, Giulia Mollica for France, Vytautas Klimavicius for Lithuania, Katalin Köver for Hungary, and Enrica Bordignon for Switzerland. All candidates were unanimously elected by the general assembly. All candidates had been asked prior to the meeting and accepted their election.

**Ad 7.** A. Böckmann as the new president gave a short inaugural speech and thanked B. Blümich for his work. The society has wide activities including conferences, publications, education. A. Böckmann wants to continue and further strengthen these activities. As president, she wants to open the committee and Bureau to more young members. She looks forward very much to the next conferences.

Ad 8. There were no varia.

The meeting closed at 15:40.

Basel / the internet, 30 June 2021

Sebastian Hiller

## Balance of the Accounts of the Groupement Ampere and the Subdivisions

Period from July 31 2019 to May 31. 2021

	Balance on July 31. 2019	Memberships Fees / Registration Payments	Donations/ Conference support	Conferences Grants / Travelgrants/ Prizes and fees paid by cc for Subdivisions	Conference Sponsoring
<b>Groupement Ampere</b>					
Ampere (CHF)	15'525.51				
Ampere (Euro)	28'943.09	29'031.76		9'230.83	
Andrew (CHF)	26'295.86			1'102.21	
Andrew Depot (CHF)	94'297.95				
<b>Subdivisions</b>					
Biol. Solid State (Euro)	8'620.24	2'710.83	2'650.00		
EPR (CHF)	7'425.65				
Food NMR (CHF)	917.80				
MRPM (CHF)	31'329.80				
SMRM (CHF)	47'330.88			1'096.97	
Hyp (CHF)	7'343.25				
<b>Euomar</b>					
Euomar (CHF)	71'610.89				
Euomar (Euro)	31'248.65				

Conference Surplus	Administration Bulletin print Web and Bureau Meetings / MR design	Bank Charges / Depot Charges/ losses on Depot	Account Closing / Account carry over	Bank Interests Account carry over, Dividends	Gains on Value Paper	Balance on May 31. 2021
	2'377.85	24.00				13'123.66
	1'774.44	77.75				46'891.83
		757.65		11.25		24'447.14
					5'398.83	99'696.78
	66	84.61				13'830.46
				2.15		7'427.80
	276.63	26.00		0.20		615.37
1'271.80				9.25		32'610.85
19'778.72	84.06	2.00		14.75		65'941.32
				2.15		7'345.40
		15.00	71'595.89			0.00
		77.75		67'407.40		98'578.30

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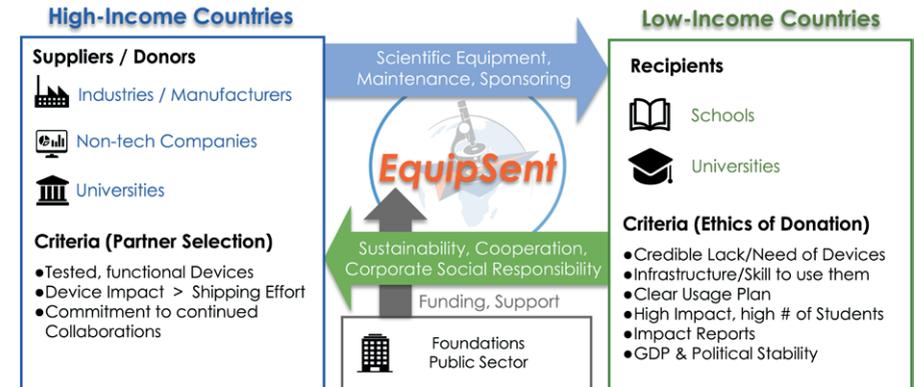
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## Executive Officers and Honorary Members of the AMPERE Bureau

The AMPERE BUREAU includes the executive officers (which take the responsibility and the representation of the Groupement between the meeting of the committee), the honorary members of the Bureau and the organizers of forthcoming meetings.

### President

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### Honorary member

Beat Meier, ETH Zürich, Switzerland  
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### Honorary member

Stefan Jurga, Adam Mickiewicz University, Poland  
stjurga@main.amu.edu.pl

## AMPERE Committee

**Sharon Elizabeth Marie Ashbrook** (2016-2024) University of St. Andrews, United-Kingdom

**Rolf Boelens** (2016-2024) Utrecht University, The Netherlands

**Enrica Bordignon** (2021-2025) Ruhr University, Germany

**Vladimir Chizhik** (2016-2024) University of St. Petersburg, Russia

**Peter Crowley** (2018-2022) National University of Ireland, Ireland

**Janez Dolinšek** (2016-2024) Institute Jozef Stefan, Slovenia

**Isabella Caterina Felli** (2016-2024) CERM, University of Florence, Italy

**Ana Maria Pissarra Coelho Gil** (2018-2022) University of Aveiro, Portugal

**Patrick Giraudeau** (2016-2024) Université de Nantes, France

**Klaartje Houben** (2021-2025) DSM, Den Haag, Nederland

**Kristaps Jaudzems** (2019-2023) University of Latvia, Latvija

**Vytautas Klimavičius** (2021-2025) Technical University Darmstadt, Germany

**Katalin Köver** (2021-2025) University of Debrecen, Hungary

**Wiktor Kozminski** (2016 - 2024) University of Warsaw, Poland

**Birthe Brandt Kragelund** (2018-2022) University of Copenhagen, Denmark

**Jose Martins** (2021-2025) Ghent University, Belgium

**Jörg Matsysik** (2021 - 2025) University Leipzig, Germany

**Giulia Mollica** (2021-2025) ICR, Aix Marseille University, France

**Predag Novak** (2019-2023) University of Zagreb, Croatia

**Giacomo Parigi** (2021-2025) University of Florence, Italy

**Annalisa Pastore** (2021-2025) King's College London, England

**Miquel Pons** (2016-2024) University of Barcelona, Spain

**Indrek Reile** (2019-2023) National Institute of Chemical Physics and Biophysics, Estonia

**Frode Rise** (2018-2022) University of Oslo, Norway

**Sharon Ruthstein** (2018-2022) Bar-Ilan University, Israel

**Mariana Isabel Coutinho Sardo** (2021-2025) University of Aveiro, Portugal

**Paul Schanda** (2021-2025) The Institute of Science and Technology, Austria

**George Spyroulias** (2017-2025) University of Patras, Greece

**Ville-Veikko Telkki** (2016-2024) University of Oulu, Finland

**Christina Thiele** (2016-2024) Technische Universität Darmstadt, Germany

**Daniel Topgaard** (2017-2025) Lund University, Sweden

**Lukáš Trantírek** (2021-2025) CEITEC - Central European Institute of Technology, Czech Republic

**Jadwiga Tritt-Goc** (2021-2025) Polish Academy of Sciences, Poland

**Paul Vasos** (2019-2023) Horia Hulubei Institute for Nuclear Physics (IFIN-HH), Romania

## Honorary members

**Jean Jeener**

Université Libre, Belgium

**Karl Alexander Müller**

IBM Zurich Research Laboratory, Switzerland

**Hans Wolfgang Spiess**

Max Planck Institute for Polymer Research, Germany

**Kurt Wüthrich**

ETH Zürich, Switzerland

## Prize Committee

**President:**

**Bernhard Blümich**, RWTH Aachen University, Germany

**Members:**

**Mark E. Smith**, University of Southampton, England

**Annalisa Pastore**, King's College London, England

**Alexej Jerschow**, New York University, USA

**Enrica Bordignon**, Ruhr University, Germany

## Future conferences

### Ampere Event 2021

MR FOOD 2021	online workshop	October 28
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### Ampere Event 2022

19 <sup>th</sup> International School-Conference on Magnetic Resonance and it's applications, Spinus 2022	online, St. Petersburg (Russia)	March 28 to April 1
MR FOOD 2022	Aarhus (Denmark)	June
Euromar 2022	Utrecht (Netherlands)	July 10-14
Magnetic Resonance in Porous Media	Hangzhou (China)	August
Alpine Conference on Magnetic Resonance in Solids	Chamonix (France)	September

### Ampere Event 2023

Euromar 2023	Glasgow (England)	July 9-13
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### Ampere Event 2024

HYP24	Leipzig (Germany)	September
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Groupement  
**AMPERE**

[www.ampere-society.org](http://www.ampere-society.org)