

BULLETIN DU GROUPEMENT

d'informations mutuelles

**AMPERE**



SE CONNAÎTRE, S'ENTENDRE, S'ENTRAIDER

July to September 2019

No. 276

Office: ETH Zürich, Laboratory of Physical Chemistry  
8093 Zürich, Switzerland, [www.ampere-society.org](http://www.ampere-society.org)

## Contents

Editorial	1
Portrait: Prof. Sebastian Hiller	2
Magnetic Resonance An Interactive Open Access Publication of the Groupement AMPERE	4
Report: ICMRM Paris	8
Paul Callaghan Young Investigator Award, Marine Moussu	11
Poster Prize ICMRM, Amy-Rae Gauthier	14
Beauty Image Prize ICMRM, Markus Küppers	17
Minutes of the meeting of the AMPERE Bureau	18
Minutes of the meeting of the AMPERE Committee	22
Minutes of the meeting of the General Assembly of the Groupement AMPERE	26
Financial Statement of the Groupement AMPERE	28
Executive Officers and Honorary Members of the Ampere Bureau	32
Future conferences and Ampere events	37

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)**

Correspondence address:

ETH Zurich, Laboratory of Physical Chemistry, HCI F 223

Vladimir Prelog Weg 2, 8093 Zurich, Switzerland

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

Publisher: Matthias Ernst, ETH Zurich, Switzerland

## Editorial

Dear members of the Groupement AMPERE,

my first year as Secretary General of the Groupement AMPERE was completed after this year's EUROMAR conference in Berlin. Although I had been involved in the AMPERE Bureau before, the amount of work was a lot higher than I anticipated when I was asked whether I would be willing to take over the job from Gunnar Jeschke. To give you an idea, I received and sent more than 1300 emails during the last year for AMPERE. A lot of this work was related to the formation of the new Publication Division of the Groupement AMPERE and the founding of our new journal *Magnetic Resonance - An Interactive Open Access Publication of the Groupement AMPERE*. I think this was time well spent and I sincerely believe that our *Magnetic Resonance* will flourish and become an important journal in our field. To make this happen requires your support and the support of the whole magnetic-resonance community by sending manuscripts to the new journal. You can read more details about the Magnetic Resonance on page 4 of this Bulletin.

I would also like to welcome the new members of the AMPERE Committee that were elected at the General Assembly in Berlin: Indrek Reile, Estonia; Paul Vasos, Romania; Predrag Novak, Croatia; and Kristaps Jaudzems, Latvia. Thank you very much for your willingness to get involved in AMPERE. I hope that working together we can further improve the services that AMPERE offers to our community.

After the summer, with vacation and conferences, for many of us the daily routine has taken over again. Here in Zurich, the fall semester has already started in the middle of September and teaching is already in full swing. I wish you a peaceful fall and start of the winter season.

Best regards,



Matthias Ernst  
Secretary General  
Groupement AMPERE

## Portrait: Prof. Sebastian Hiller

- why magnetic resonance?

I got fascinated by NMR spectroscopy during my undergraduate studies at ETH Zurich and I also wanted to engage in structural biology. So I joined the group of Kurt Wüthrich for my PhD.

- what is your favorite frequency?

900'138'474 Hz. That is the resonance frequency of the amide proton of leucine 716 in the membrane protein BamA on a 900 MHz spectrometer. It has always remained a source of amazement to me that we can resolve several hundreds of resonances in large biomolecules, enabling us to study structure, function and dynamics in a site-specific manner.

- what do you still not understand?

I am puzzled by a number of biological mechanisms that I want to eventually understand at atomic detail: How do  $\beta$ -barrel membrane proteins fold into a membrane? How do chaperones recognize and interact with client proteins? How is the incredible robustness of cellular life guaranteed? And many more.

- luckiest experiment you have ever done.

I think I was quite lucky that I never created a major experimental accident, such as burning a coil, quenching a magnet, or destroying a valuable sample.

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

We learn a lot from mistakes, so I must have made many. I don't really regret anything.

- most memorable conference story

I will never forget the extravagant conference dinner of the ICMRBS 2008, which was held at sunset on the deck of an aircraft carrier in the harbor of San Diego.

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

I would like to learn from the hunter-gatherer referred to as Ötzi what his life was like in the stone age and all details about their technologies, music, art and religion.

- when do you get your best ideas?

I get them often on conferences and visits to other institutes, from talking to other scientists and combining their work with my perspective.

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

I would travel in the Southern Pacific.

- your idea of happiness.

Being part of functional social systems.



### Position:

Professor for Structural Biology and Biophysics, Biozentrum, University of Basel

### Awards:

2011 ERC starting grant; 2014 EMBO Young investigator; 2018 ICMRBS Founders' Medal

### Homepage:

<http://www.biozentrum.unibas.ch/hiller>

### Education:

Diploma in Interdisciplinary Science, ETH Zurich, 2002; PhD, ETH Zurich, 2006

### Interests:

science, winter sports, family, friends, traveling

## **Magnetic Resonance**

### **An Interactive Open Access Publication of the Groupement AMPERE**

Gottfried Otting, Matthias Ernst and Geoffrey Bodenhausen

When the AMPERE Committee met at EURO-ISMAR in Berlin on August 27<sup>th</sup> 2019, it decided to create a new Division for publications and to launch a new publication called "*Magnetic Resonance, An Interactive Open Access Publication of the Groupement AMPERE*" for articles on Nuclear and Electron Magnetic Resonance and Imaging. *MR*, as we simply and affectionately refer to, is intended to be a quality not-for-profit open access publication, in view of fostering the unhindered and transparent dissemination of primary scientific literature free from impediments such as pay-walls and excessive open access fees that are imposed by most established commercial publishers, some learned societies and an increasing number of predatory journals. The new publication will provide compliant open access publishing as defined by Plan S of national and European research councils and funding bodies [1].

*Magnetic Resonance* will publish significant theoretical and experimental advances in all fields of magnetic resonance in liquids, solids and gases, *in vitro* and *in vivo*, including nuclear magnetic resonance (NMR) spectroscopy, electron paramagnetic resonance (EPR) spectroscopy, magnetic resonance imaging (MRI), magnetic resonance spectroscopy (MRS), nuclear quadrupole resonance (NQR), various hyperpolarization methods in liquids and solids such as dynamic nuclear polarization, parahydrogen induced polarization, optically detected magnetic resonance, as well as innovative advances in techniques supporting magnetic resonance experiments that may range from sample preparation to computational techniques. Advanced and innovative applications of magnetic resonance are also within the scope of the journal, but routine applications of established techniques and minor technical advances will be considered to be outside its scope.

*Magnetic Resonance* will be produced by Copernicus Publications [2] in Göttingen. The authors retain the copyright under the Creative Commons Attribution 4.0 License. The general public are free to copy, distribute, transmit and adapt the work, as long as the original authors are given proper credit.

*Magnetic Resonance* uses a modern interactive two-stage review system that has been developed jointly by the European Geosciences Union (EGU, [www.egu.eu](http://www.egu.eu)) and by Copernicus. The benefits and viability of this approach have been demonstrated since 2001 by the successful journal Atmospheric Chemistry and Physics (ACP, [www.atmos-chem-phys.net](http://www.atmos-chem-phys.net)) and a growing number of sister publications [3].

Each paper submitted to *Magnetic Resonance* will initially be assessed in view of maintaining sufficient standards by one of the Topical Editors, who will be invited automatically by matching key words chosen by the authors from a list provided by the Journal with key words attributed to the Editors drawn from the same list. If no Topical Editor accepts to handle the article within a few days, one of the Executive Editors is called upon. If the submitted paper is deemed to be in principle suitable for publication in *Magnetic Resonance*, a DOI is assigned to establish priority and the manuscript submitted by the authors is put online as a "discussion paper" on a site "*Magnetic Resonance Discussions*" for the general public to see and comment. Commentators must register for login, and comments must be signed, i.e., may not be anonymous. Authors are informed when comments are made and expected to reply to them. Editors supervise the discussion and can censor fake, contentious or libelous messages. Checks for plagiarism will be performed. In instances of fraud or plagiarism, authors will be called upon by the Editors to publish a retraction. Neither the Editorial Board nor the Groupement AMPERE are held legally responsible, but the authors are.

As soon as the manuscript submitted by the authors is put online, it will be forwarded by the Topical Editor for traditional peer review to external experts, whose identities will initially only be known to the Topical Editor. Reviewers are invited to comment on the inherent scientific merits of the submitted manuscript rather than on its suitability for the journal. The reviewers' reports are made public, but the reviewers' identities will only be revealed if they give their explicit approval. The discussion trail remains publicly accessible, can be cited and may serve as proof of priority.

The discussion is closed after a period of four weeks, provided at least two external reviews have come in and the authors have uploaded their response (but not a revised manuscript). At this point the editor usually invites the authors to submit a corrected manuscript that should take into account critique that the editor believes to be the important aspects of the reviews and public discussion. The editor may then decide to accept, reject or decide to engage new reviewers for the second stage. This process is no

longer public, as in conventional peer review. If authors appeal the Topical Editor's decision, the case is submitted to an Executive Editor. If accepted, the manuscript is copy-edited, formatted in HTML, XML and PDF formats and page charges are billed to the authors.

The founding Editors recognize that, in the current environment, many authors are encouraged by their institutions and granting agencies to publish in journals with high impact factors. It will not be possible for Clarivate (who are responsible for the Web of Science) to calculate the impact factor of a new publication such as *Magnetic Resonance* in the first 2 or 3 years. However, we anticipate a shift of emphasis away from the impact factors of journals to the *impact of individual papers*, bearing in mind that the former are often a meaningless measure of the latter. Copernicus Publications tracks the numbers of views and downloads of each individual paper and links to Google Scholar for citation numbers.

Many authors tend to prefer general-purpose journals because of their prestige and wide distribution, but such journals often consult reviewers who are less knowledgeable. Open Access now makes such tactics obsolete, since publications are available to *all* readers with access to the internet, so that access is no longer restricted to employees of subscribing institutions.

*Magnetic Resonance* is financially independent and owned by the Groupement AMPERE. Authors are expected to contribute 80 €/page for submissions in Word (reduced to 75 €/page for submissions in LaTeX) towards the cost of checking for plagiarism, language editing, production of HTML, XML and PDF formats, web hosting and archiving. There are no charges for colour figures. Charges can be waived on request, if justified. Some research institutions cover the publication costs for all Copernicus journals [4]. The articles will normally only be accessible in electronic form. Paper copies can be printed on request. The publication will be referenced by Google Scholar, by Emerging Sources Citation Index and, after an initial period, by Clarivate (owner of Web of Science). PubMed and MedLine will reference *Magnetic Resonance*, if sufficient papers of biological and medical relevance are published.

The initial Executive Editors of the journal elected by the Bureau of the Groupement AMPERE are Geoffrey Bodenhausen, Matthias Ernst, Daniella Goldfarb, Mehdi Mobli, Gottfried Otting and Peter van Zijl. The Bureau of the Groupement AMPERE will annually review the operation of the publications.



Martin Rasmussen and Bernhard Blümich signing the contract

- [1] [https://en.wikipedia.org/wiki/Plan\\_S](https://en.wikipedia.org/wiki/Plan_S)
- [2] [https://publications.copernicus.org/for\\_authors/services\\_for\\_authors.html](https://publications.copernicus.org/for_authors/services_for_authors.html)
- [3] [https://www.atmospheric-chemistry-and-physics.net/peer\\_review/interactive\\_review\\_process.html#typesofinteractivecomments](https://www.atmospheric-chemistry-and-physics.net/peer_review/interactive_review_process.html#typesofinteractivecomments)
- [4] [https://publications.copernicus.org/for\\_authors/financial\\_support.html](https://publications.copernicus.org/for_authors/financial_support.html)

## Report: 15<sup>th</sup> ICMRM, Paris 2019

The 15<sup>th</sup> ICMRM was organized under the auspices of the Spatially Resolved Magnetic Resonance (SRMR) Division of the Groupement AMPERE. This year's conference was held at the Brain and Spine Institute (ICM: Institut du Cerveau et de la Moelle épinière), in Paris, France, between August 18<sup>th</sup> and 22<sup>nd</sup>: <https://icmrm2019.sciencesconf.org>. There were 169 participants from 21 countries, most represented being USA, Germany and France.

### Conference Program:

The conference program comprised 3 plenary lectures, 4 educational lectures, 10 invited oral lectures, and 52 oral presentations selected by a review committee from submitted abstracts. In addition, 107 posters were presented during two poster sessions. There were no parallel sessions.

The four educational lectures were presented by Lawrence Wald (MRI Hardware), Dmitry Budker (Zero- and Ultra- Low Field MRI), Ben Newling (Relaxometry in Porous Media), and Miki Komlosh (Flow and Diffusion). The educational lectures were recorded and we are discussing the possibility of creating a channel "ICMRM lectures" which will be made available to the community (information follows on [ampere-society.org](http://ampere-society.org))

The ICMRM began with a plenary lecture, sponsored by AMPERE and BASF, given by Professor David Hoult and titled "Abraham to Zeugmatography: A Physicist's Fascination with Fields".

This year's Erwin Hahn Lecturer, selected by an international panel, was Bernhard Blumich. In addition, we had a special lecture, the "Stimulated Hahn Lecture", which was given by Eiichi Fukushima. Eiichi was elected Erwin Hahn Lecturer in 2017 but unfortunately, due to a bicycle accident, could not attend the ICMRM in Halifax. The executive committee decided to invite Eiichi to give this lecture at the ICMRM in Paris.

### Competitions:

Paul Callaghan Young Investigator competition

Six young investigators were invited to present in a special session based on reviewed abstracts. The winner, selected by an expert panel, was Marine Moussu from Institute Fresnel, Marseilles, France.

### Poster Competition:

There were 20 posters registered for the poster competition. The winner was Amy-Rae Gauthier from University of New Brunswick, Canada.



Marine Moussu (left) and Amy-Rae Gauthier (right) were awarded during the conference dinner.



### Image Beauty Competition:

Seven images entered this year's competition. The winner was Image B, presented by Stefan Benders from NYU, USA.

### Venue:

The entire conference was held at ICM. Exhibitor booths, registration, coffee breaks and lunches were in the foyer in front of the lecture theater. The opening reception was also held at ICM.

The banquet dinner was held on the boat Onyx while cruising along the river Seine. A visit to NeuroSpin, sponsored by CEA, was organized on Wednesday afternoon. Thirty conference participants visited NeuroSpin.



Poster Session



Exhibitor booths



Banquet Dinner



From left : Eiichi Fukushima, David Hoult, Dimitrios Sakellariou, Luisa Ciobanu, Bernhard Blumich, Melanie Britton, Sarah Codd

#### Sponsorships:

The organizing committee is grateful for the funding in the form of sponsorship received from: Bruker, Magritek, CEA, RESPORE, AMPERE, Pan Stanford Publishing, France Life Imaging, Schlumberger, BASF, Boosters, Rapid Biomedical, M-Cube, RS2D, Pure Devices, Tecmag. Without their support, the conference would not have been able to offer such an attractive academic and social programme.

#### Conference Chairs:

Luisa Ciobanu and Dimitrios Sakellariou

#### Local Organizing Committee:

Solène Bardin, Patrick Berthault, Céline Boutin, Luisa Ciobanu, Gabrielle Fournet from CEA, Alexandra Petiet from ICM, Vincent Sarou-Kanian from CNRS – Orleans

## Paul Callaghan Young Investigator Award Marine Moussu, Aix Marseille University

### Ferroelectric Composite Ceramic Probe for MRM

M.A.C. Moussu<sup>1,2</sup>, S. Glybovski<sup>3</sup>, E. Nenasheva<sup>4</sup>, R. Abdeddaim<sup>1</sup>, S. Enoch<sup>1</sup>, L. Ciobanu<sup>5</sup>

<sup>1</sup>Aix Marseille Univ, CNRS, Centrale Marseille, Institut Fresnel, Marseille, France, <sup>2</sup>Multiwave Innovation, Marseille, France, <sup>3</sup>ITMO University, Saint-Petersburg, Russia, <sup>4</sup>Ceramics Co.Ltd, Saint-Petersburg, Russia, <sup>5</sup>CEA/DRF/NeuroSpin, Gif-sur-Yvette, France

#### Introduction:

In Magnetic Resonance Microscopy (MRM), losses inherent to the probe and its interactions with the sample fundamentally limit the achievable Signal-to-Noise Ratio (SNR). The reference volumetric probe is the solenoid, for which the imaging performance is limited, at ultra-high field, by the electric field induced in the conductive biological sample [1]. To overcome this limitation, a novel MRM probe is proposed. Exploiting the first resonant mode of a ceramic ring resonator allows to reduce the electric field level in the sample [2].

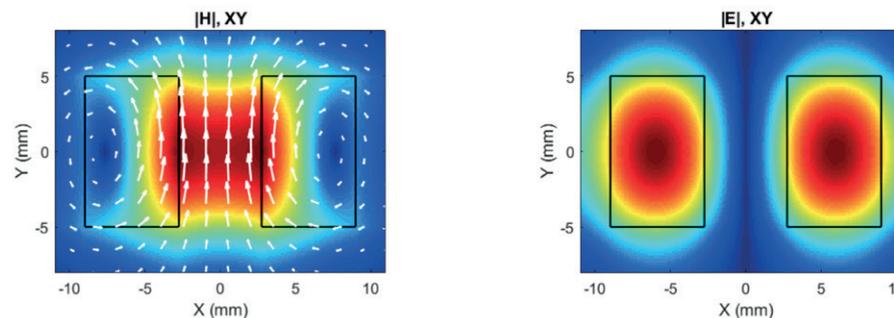


Fig. 1: Calculated field distribution of the transverse electric mode in the ceramic ring resonator (OD 18 mm, ID 5.5 mm, H 10 mm, relative permittivity 536) filled with a sample of relative permittivity 50 and conductivity 0.5 S.m<sup>-1</sup>. Left: magnetic field amplitude and field lines. Right: electric field amplitude.

#### Methods:

We developed an analytical model to study the first transverse electric mode of high permittivity dielectric resonators in terms of frequency and field distribution. From this model, we deduced the geometrical and electromagnetic properties of such a resonator fitted to MRM at 17.2 T. The prototype consisted of a specially created 50/50 low-loss composite of BaTiO<sub>3</sub>/SrTiO<sub>3</sub> with Mg additives [3], with the following geometrical

parameters: outer diameter  $D_o$  18 mm, inner diameter  $D_i$  5.5 mm and height  $h$  10 mm. The composite properties, measured at ambient temperature, were: real relative permittivity 536 and loss tangent  $8.10^{-4}$ . During MR experiments at 17.2 T, the first transverse electric mode, was excited with a loop (inner diameter 1 cm) placed close to the resonator. The latter was tuned to 730 MHz by imposing its temperature to be 21.8°C using a circulating water pad. The reference solenoid coil, built for comparison, had a similar internal volume and was designed to maximize the SNR according to Ref. [4] (4 turns, diameter 5.5 mm, height 12 mm, 1.5 mm thick copper wire). For the two coils,  $B_1^+$  maps were obtained on a cylindrical mouse brain liquid phantom (relative permittivity 50 and conductivity  $0.5 \text{ S}\cdot\text{m}^{-1}$ ) using two gradient echo acquisitions with flip angles of 30 and 60 degrees and computed as in Ref [5]. Imaging of biological samples were performed with the same magnet using the sequences and parameters described in the results section.

#### Results and discussion:

Fig. 1 depicts the field distribution of the excited resonator  $TE_{010}$  mode, which demonstrates a maximum of magnetic field together with low electric field values in the sample region. These features diverge from those of the solenoid in which magnetic and electric fields experience equivalent variations (concomitant high magnetic and high electric fields) in the area of interest. The ceramic probe and the solenoid have very similar  $B_1^+$  axial homogeneity (data not shown), which is in agreement with the simulation results. Selected slices from 3D images of a red currant, acquired with the two probes using identical acquisition parameters, are shown in Fig. 2 (a,b). The standard deviation of the noise, computed within the red boxes and averaged over the entire sample length in the signal-less area, had almost identical values for the two probes: 6.34 and 6.36 for the ceramic ring and the solenoid, respectively. However, as illustrated by the voxel intensity histograms in Fig. 2 (c), the image quality for the ceramic probe is superior to that of the solenoid, with no overlap between the signal and the noise histograms. From the histograms in Fig. 2 (c), we can also infer the SNR obtained with the ceramic probe which is 1.9 times higher than that of the solenoid. Images of varying biological samples, acquired with the ceramic prototype, are given in Fig. 3 as examples of the robustness of this probe.

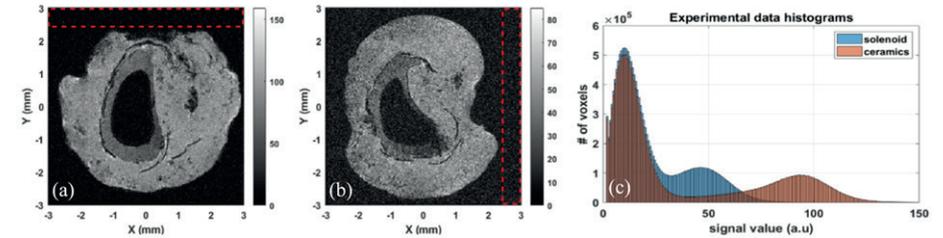


Fig. 2: Statistical study of MR acquisition on a fruit (red currant). Images obtained with the ceramic ring (a) and the solenoid (b). Acquisition parameters are: gradient echo sequence, flip angle  $15^\circ$ , TE 6 ms, TR 33 ms, spatial resolution  $23 \mu\text{m}$  isotropic, acquisition time 35 min. (c) Voxel intensity histograms of the data sets acquired with the two probes.

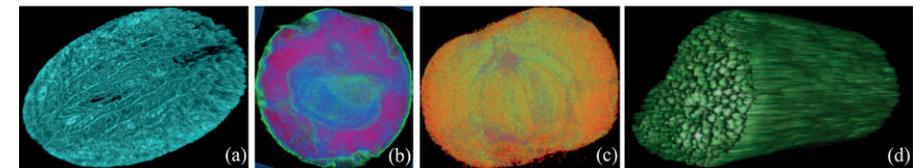


Fig. 3: Selected slices from 3D images of a bean (a), a red currant (b) and a mistletoe (c), and 3D view of the images obtained on a plan petiol (d). For each acquisition, the parameters are the following: (a) Gradient echo sequence, 25 min acquisition time,  $25 \times 25 \times 250 \mu\text{m}^3$  resolution; (b) Gradient echo, 35 min,  $23 \times 23 \times 23 \mu\text{m}^3$ ; (c) Zero Time Echo, 2 min 30 s,  $30 \times 30 \times 30 \mu\text{m}^3$ ; (d) Gradient echo, 16 min 40 s,  $23 \times 23 \times 250 \mu\text{m}^3$ .

#### Conclusion:

We report the design and construction of a novel ceramic MRM probe, which enables a two-fold SNR gain over the traditional solenoidal coil. This performance is achieved through an optimized electromagnetic field within the imaged sample.

#### References:

- [1] Park, J. Magn. Res. 199(2), 233-237 (2009).
- [2] Webb, A.G. Concepts Magn. Reson. A, 38(4), 148-184 (2011).
- [3] Nenashева, E.A. Ferroelectrics. 506(1), 174-183 (2017).
- [4] Minard K.R. Concepts Magn. Reson. 13(2), 128-142 – 13(3), 190-210 (2001).
- [5] Cunningham C.H. Magn. Reson. Med, 55(6), 1326-1333 (2006).

Acknowledgements: This project received funding from the European Union's Horizon 2020 research and innovation program (grant agreement No. 736937) and from the Russian Foundation for Basic Research (grant No. 18-32-20115).

**Poster Prize, ICMRM 2019**  
**Amy-Rae Gauthier**

**Method improvements for diffusion tensor imaging of turbulent fluids**

Amy-Rae Gauthier, Noah Stocek, and Ben Newling  
 University of New Brunswick MRI Research Centre, Fredericton, New Brunswick, Canada

The study of anisotropic turbulence is of interest to the fluid dynamics community; however, measurements of anisotropy present many challenges. In computational fluid dynamics (CFD) simulations, turbulence is often assumed to be isotropic. It has been shown that turbulent fluctuations can be modelled using a diffusion equation [1]; therefore, diffusion tensor imaging (DTI) [2] can be used to measure the anisotropy of those fluctuations using the eddy diffusion tensor.

Since the system is fast-moving, the Single Point Ramped Imaging with  $T_1$  enhancement (SPRITE) pulse sequence with bipolar motion-sensitizing gradients is used to acquire diffusion weighted images (DWI) [3]. Turbulence was generated by flowing water through a narrowing pipe at a maximum speed of 6 m/s ( $Re = 70\,000$ ). In theory, six different motion-sensitization schemes provide the six projections needed to measure the full tensor. In practice, however, this method presents two main challenges.

Firstly, the application of rapidly switching gradients induces eddy currents in the system which effectively delay the timing of the gradient switch. Time shift trimming corrects this by delaying the RF pulse such that the centre of the pulse-acquire window aligns with the gradient switch. An algorithm was developed to optimise the value of the TST delay.

Secondly, concomitant gradients caused errors when motion-sensitizing gradients were applied in two directions simultaneously. In particular, the interaction between the z- and y-gradients and the z- and x-gradients made time shift trimming insufficient for these measurements. To compensate, two measurements each were used to calculate the xz- and yz-components of the eddy diffusion tensor.

The resulting tensor shows an interesting ring-structure as the fluid passes the obstruction. The physical interpretation of this structure is best explained when the tensor is in cylindrical-polar coordinates. In this representation, the ring structure appears in the  $D_{zz}$  and  $D_{rz}$  components.

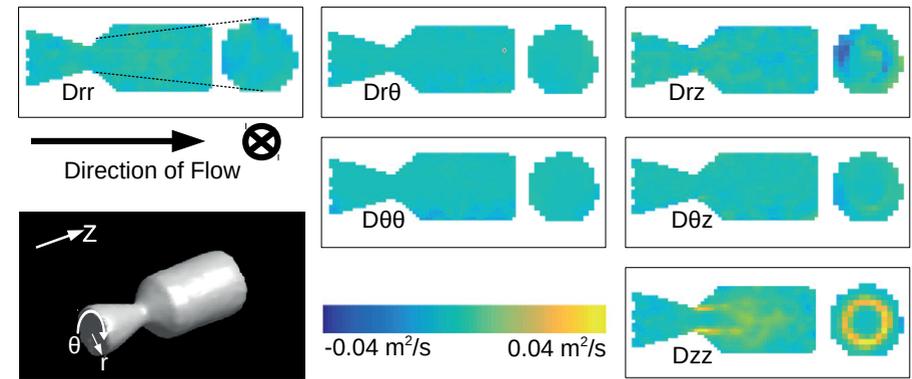


Figure 1 The eddy diffusion tensor represented in cylindrical polar coordinates. The central slice through the yz-plane and a slice after the obstruction in the xy-plane are shown.

This indicates that fluctuations occur mainly in the direction of flow, however, after interacting with the obstruction, fluctuations “spread out” radially.

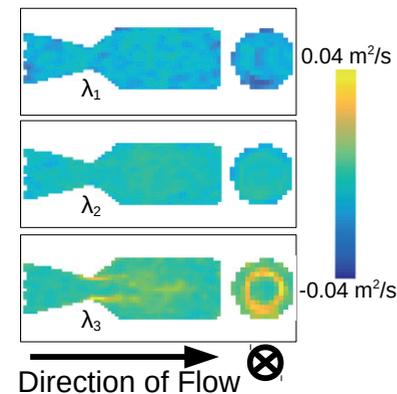


Figure 2 The three eigenvalues of the eddy diffusion tensor. The same slices through the 3D data are shown as in Figure 1.

Diagonalizing the eddy diffusion tensor results in three spatially resolved eigenvalues which are on the order of  $10^{-2}$  m<sup>2</sup>/s. This is notably larger than the self-diffusion coefficient of water which is on the order of  $10^{-9}$  m<sup>2</sup>/s. The three eigenvalues are also not equal, which confirms that the turbulent fluctuations are anisotropic and the typical CFD assumption of isotropy is not valid in this case.

This work has successfully applied DTI using motion-encoded SPRITE to a turbulent flow system. The spatially inhomogeneous geometry exhibits significant off-diagonal terms. Representing the data in cylindrical polar coordinates reveals intuitively consistent behaviour of the flow. And lastly, the eigenvalues show that turbulence in this system is anisotropic.

[1] Kuethe, D.O., *Phys. Rev. A.*, 40 (1989) 4542-4551

[2] Basser, P.J. et al, *Biophys. J.*, 66 (1994) 259-267

[3] Newling, B., et al, *Phys. Rev. Lett.*, 93 (2004) 154503-1-154503-4

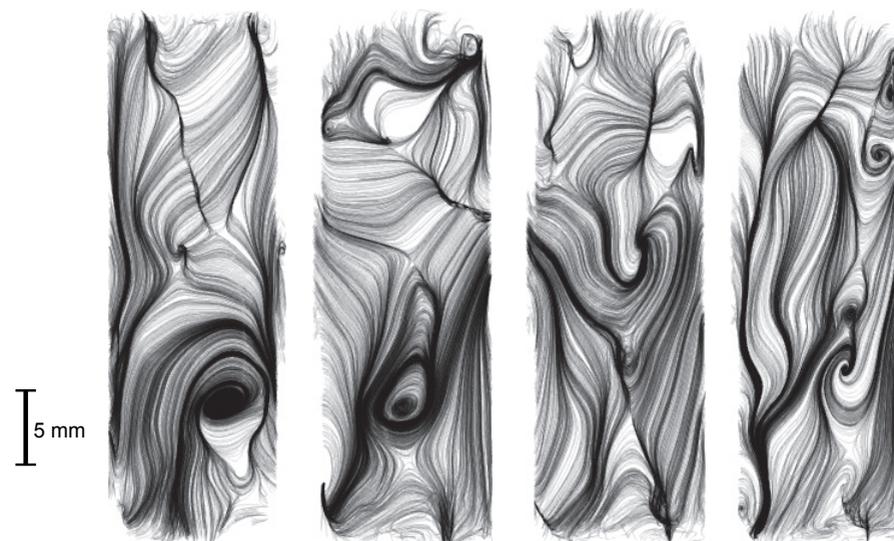
## Beauty Image Prize, ICMRM 2019

Stefan Benders

### "*in-situ* MRI velocimetry of the magnetohydrodynamic effect in electrochemical cells"

Investigations of *in-situ* electrochemical reactions with Nuclear Magnetic Resonance (NMR) have been gaining increased attention from scientists, since the technique yields additional information. However, when performing a reaction *in-situ* the reaction rate can be increased due to Lorentz force, which is equal to the cross product between the current density and the magnetic field applied. This phenomenon is called the magnetohydrodynamic (MHD) effect, which increases the mass transport significantly. Although there are benefits such as acceleration of a reaction, it is crucial to understand and to take this effect into account during the *in-situ* electrochemical measurements. With MR velocimetry, *in-situ* investigation of mass transport is possible, which is shown in these images for a slice parallel to two plate electrodes in a cuvette cell arrangement at different times. Significant velocities as well as complex flow patterns were detected.

Electrochemical Vortex flow in CuSO<sub>4</sub> solution



## Minutes of the meeting of the AMPERE Bureau in Berlin, on August 26, 2019

### Members present (11):

B. Blümich, M. Ernst, G. Bodenhausen, A. Böckmann, J. Dolinšek, B.H. Meier, P. Giraudeau, S. Jurga, A. Kentgens, T. Prisner, S. Hiller

### Excused (2):

H.-W. Spiess, M. Britton

### Agenda:

1. Approval of the agenda.
2. Approval of the minutes of the AMPERE Bureau meeting in Zürich, March 7, 2019
3. Report on the state of the AMPERE Society (B. Blümich)
4. Financial report (M. Ernst)
5. Preparation of AMPERE Committee elections (M. Ernst)
6. Open-access magnetic-resonance journal (G. Bodenhausen)
7. Discussion about Bureau elections in 2020 (B. Blümich)
8. Varia (M. Ernst)

At 19:00 hours, Matthias Ernst opened the meeting.

Ad 1. The agenda was approved as is.

Ad 2. The minutes of the AMPERE Bureau meeting in Zürich, March 7, 2019, were approved unanimously.

Ad 3. B. Blümich reported with sadness that Stefano Caldarelli has passed away. An obituary written by Lyndon Emsley was read. Further members of the worldwide magnetic-resonance community were remembered who had passed away: Nicholas Bloembergen, George Feher, Charlie Slichter, Zeev Luz, Sir Rex Richards, Al Redfield and Yoji Arata.

The organizational structure and a list of recent and upcoming meetings were shown and explained by B. Blümich, with particular mention of the EUROMAR, July 5–9, 2020 in Bilbao.

Spinus 2019	Saint Petersburg (Russia)	April 1-5, 2019
Ampere NMR School	Zakopane (Poland)	June 23-29, 2019

15 <sup>th</sup> ICMRM	Paris (France)	August 18-22, 2019
Euroismar 2019	Berlin (Germany)	August 25-29, 2019
XI <sup>th</sup> EFEPR Conference	Bratislava (Slovakia)	September 1-5, 2019
11 <sup>th</sup> Alpine Conference on Magnetic Resonance in Solids	Chamonix (France)	September 15-19, 2019
8 <sup>th</sup> EFEPR School	Brno (Czech Republic)	November 18-25, 2019
Spinus 2020	Saint Petersburg (Russia)	March 29 to April 4, 2020
MR Food	Aarhus (Denmark)	June 2-5, 2020
Ampere NMR School 2020	Zakopane (Poland)	June 21-27, 2020
Euromar 2020	Bilbao (Spain)	July 5-9, 2020
15 <sup>th</sup> Magnetic Resonance in Porous Media	Tromsø (Norway)	August 24-28, 2020
HYP 20	Lyon (France)	August 24 to September 3, 2019

B. Blümich reminded everyone that costs of AMPERE conferences and events are tax exempt. Limited conference support is provided on a competitive basis. P. Giraudeau is thanked for the EUROMAR in Nantes, and Hartmut Oschkinat for the great opening of the EUROMAR 2019 and the fantastic conference so far.

B. Blümich mentioned the prizes which are given out by the society: the AMPERE Prize for Young Investigators is given biannually at the EUROMAR conference; the Raymond Andrew Prize is given to an outstanding PhD at the EUROMAR, and the Ernst Prize is given by the EUROMAR division to recognize a recent achievement. The J. Magn. Reson. Young scientist award is given out 4 times at EUROMAR and 6 times at ISMAR, with a donation of \$500 each.

While the proposal by G. Bodenhausen and G. Otting to create a new division of the AMPERE society, called Publication Division, will be discussed as item 6 below, the society has also received an additional proposal by Sarah Tufi from Elsevier. In this proposal, Elsevier seeks support from the AMPERE group for a new Gold Open Access journal. Both proposals will be presented the next day at the AMPERE Committee. In this context, B. Blümich also informed about the existence of ChemRxiv since March 2018 which has great statistics, with 2200 articles published.

B. Blümich informed about the upcoming elections for the AMPERE

committee, where it would be good to elect about four new members. B. Blümich further informed that a new president needs to be elected in 2020. The election will take place next year at the meeting of the AMPERE Committee at EUROMAR.

Ad 4. M. Ernst presented the financial report. Finances were stable over the past years. Revenues were equally high as expenses. Subdivisions have healthy finances as well. Incomes are mainly from membership fees, expenses mainly for conferences and workshops, travel stipends and small administration costs. The AMPERE society possesses financial reserves in reasonable amounts (about 45'000 CHF + 120'000 CHF for Andrew prize). Subdivisions have their own accounts. Some have more and some have less. In total, they have around 100'000 CHF. The EUROMAR division possesses roughly 100'000 CHF.

Ad 5. For the AMPERE committee elections, M. Ernst had received one proposal prior to the meeting, Indrek Reile from Estonia. 10 countries miss representation. Further suggestions were Paul Vasos from Romania, Snorri Þór Sigurðsson (organic chemistry) from Iceland, Predrag Novak from Croatia and Kristaps Jaudzems from Latvia. A member from Switzerland is not necessarily needed.

For the Bureau elections in 2020, a new president will be needed, as B. Blümich will step down. Vice president, Chair prize committee and honorary members need to be re-elected in 2020. A. Böckmann and J. Dolinšek declare that they remain available.

Ad 6. G. Bodenhausen and G. Otting had proposed at the previous Bureau meeting the creation of a new AMPERE subdivision and a new publication journal. They had created a poster with all details which was displayed in the basement of EUROMAR. The name of the new journal would be "Magnetic Resonance". The publisher Copernicus, which is a spin-off of the Max Planck Society, will make a presentation with two representatives the next day at the AMPERE Committee meeting. G. Bodenhausen reported that within the community there was some opposition to the idea of a new journal. Some people thought it an unfair competition to JMR. There is no impact factor to be expected in the first 3-4 years. G. Bodenhausen reported that Art Palmer proposed a more interactive journal but it remains unclear if it is wise to propose already changes to Copernicus before even a first contract has been signed. Some countries might get reduced prices. 10% of the submitted pages would be free, which may be donated to developing countries. The AMPERE organization could add other free pages, which would need to be paid by someone. If a contract would be signed

this week, publication could start in October. The AMPERE committee has to decide on the creation of the subdivision, connected to the signing of the contract. The Bureau is unanimously in favor of proceeding with the proposal. There will be two presentations tomorrow in the committee meeting, one by Elsevier and one by Copernicus.

Ad 7. Was integrated into 5.

Ad 8. None.

The meeting was closed at 20:10 hours.

Berlin, August 26, 2019  
Protocol: Sebastian Hiller

## Minutes of the meeting of the AMPERE committee in Berlin, on August 27, 2019

### Members present (25):

B. Blümich, M. Ernst, A. Böckmann, S. Jurga, J. Dolinšek, D. Topgaard, A. Kentgens, S. Azblonvok, C. Thiele, J. Banyas, S. Ruthstein, W. Kozminski, R. Konrat, I. Felli, B. Kragelund, V.-V. Telkki, T. Prisner, G. Spyroulias, M. Pons, R. Boelens, P. Giraudeau, G. Bodenhausen, B.H. Meier, S. Hiller

### Guests (4):

G. Otting (full time), S. Tufi, X. van Edig, M. Rasmussen (part time)

### Excused (2):

H.-W. Spiess, P. Crowley, M. Britton

### Agenda:

1. Approval of the agenda.
2. Approval of the minutes of the AMPERE Bureau meeting in Nantes, July 4, 2018
3. Report on the state of the AMPERE Society (B. Blümich)
4. Financial report (M. Ernst)
5. Proposal for a collaboration with Elsevier (M. Ernst)
6. Open-access magnetic-resonance journal (G. Bodenhausen)
7. Preparation of AMPERE Committee elections (M. Ernst)
8. Discussion about Bureau elections in 2020 (B. Blümich)
9. Varia

At 13:10 hours, Matthias Ernst opened the meeting. The presence of G. Otting as a guest for the entire meeting was approved.

Ad 1. The agenda was approved as is.

Ad 2. The minutes of the AMPERE Committee meeting in Nantes, July 4, 2018 were approved unanimously.

Ad 3. B. Blümich reported with sadness that Stefano Caldarelli has passed away. An obituary written by Lyndon Emsley was read. Further members of the worldwide magnetic-resonance community were remembered who had passed away: Nicholas Bloembergen, George Feher, Charlie Slichter, Zeev Luz, Sir Rex Richards, Al Redfield and Yoji Arata.

The organizational structure and a list of recent and upcoming meetings were shown and explained by B. Blümich, with particular mention of the EUROMAR, July 5–9, 2020 in Bilbao. (see page 18/19)

B. Blümich reminded everyone that costs of AMPERE conferences and events are tax exempt. Limited conference support is provided on a competitive basis. P. Giraudeau was thanked for the EUROMAR in Nantes, and Hartmut Oschkinat for the great opening of the EUROMAR 2019 and the fantastic conference so far.

B. Blümich mentioned the prizes which are given out by the society: the AMPERE Prize for young investigators is given biannually at the EUROMAR conference; the Raymond Andrew prize is given to an outstanding PhD thesis at the EUROMAR, and the Ernst Prize is given by the EUROMAR division to recognize a recent achievement. The J. Magn. Reson. Young scientist award is given out 4 times by EUROMAR and 6 times by ISMAR, with a prize money of \$500 each.

B. Blümich mentioned that the proposal by G. Bodenhausen and G. Otting for a new journal and the creation of a new division of the AMPERE society, called Publication Division will be discussed as item 6 below. The society has also received an alternative proposal by Sarah Tufi from Elsevier. Elsevier seeks support from the AMPERE group for a new Gold Open Access journal. Both proposals will be discussed below.

B. Blümich informed about the elections for the AMPERE committee, with 4 new suggestions needed. The president needs to be elected for 2020. The committee and Bureau are open to receive nominations. The election will take place next year at the EUROMAR.

Ad 4. M. Ernst presented the financial report. Finances were stable over the past years. Revenues were equally high as expenses. Subdivisions had healthy finances as well. The AMPERE society possesses financial reserves in reasonable amounts 45'000 CHF + ~120'000 CHF for Andrew prize). Incomes are mainly from membership fees, expenses mainly for conferences and workshops. Subdivisions have their own accounts. Some have more and some have less. In total, they have around 100'000 CHF. The EUROMAR division has roughly 100'000 CHF.

Ad 5./Ad 6.

G. Bodenhausen and G. Otting proposed the creation of a new journal along with a new subdivision of the AMPERE society. They have identified a suitable publisher, Copernicus, which is a spin-off of the Max Planck Society. A document has been assembled and shared that contains the relevant information including information on the peer review

system, competition, editorial board, etc. Also, a poster summarizing the characteristics of the journal was shown to the public in the basement of EUROMAR. The name of the new journal would be "Magnetic Resonance". An editorial board and more than 50 topical editors have been identified and were presented.

In parallel, the society has received an alternative proposal by Elsevier. Sarah Tufi, an Elsevier representative was invited to give a presentation on their proposal. She joined the meeting as a guest at this point. Elsevier wants to create a new gold open-access journal version of JMR, i.e. "JMR Open". Sarah Tufi presented the financing and licensing scheme of the new journal which is following the general trend to create online versions of successful traditional journals. Article fees would be 1500 \$, and the license would be CC BY 4.0. The copyright will stay with the author. Long-term archiving would be guaranteed, even beyond a possible leave of Elsevier, by the archive CLOCKS. Lucio Frydman would come on board as the editor. S. Tufi mentioned young-investigator awards, marketing, and collaboration with societies. The committee has the chance to ask questions. The reason why JMR is not directly and fully converting to the new open format is because there are still large markets that prefer conventional journals. The traditional and the new JMR journal will operate in parallel and perhaps at one point in the future, both will merge to the gold open-access system. "JMR Open" would be an article-based publication where volumes would be less important. It would use an open review system, i.e. reports could be published along with the article. Sarah Tufi then left the meeting.

Xenia van Edig and Martin Rasmussen, two representatives from Copernicus entered the meeting. They gave a presentation on their publishing activities. Copernicus is a not-for-profit publisher, founded by members of the Max Planck Society, and active since 1994. Copernicus is following the open-access policy since 2001. Business and science are separated, and the editors are not paid. Technical details of the publication process were discussed. Charges are 1125 € for 15 pages. There are also 10% of free pages for authors without money. The specialty of Copernicus journals is the open peer review. B. Blümich highly appreciates the open peer review process, through which unfair reviews as well as badly made manuscripts will be discouraged. Referees can disclose their identity, but do not have to. All content will be archived long-term, independent of Copernicus. The new journal could be ready in October to accept submissions and be first publishing in January. There could also be a twitter account. Manuscripts would be automatically checked for plagiarism. It will be possible to include supplementary material. There are some agreements with specific institutions in place that individual articles could be paid for.

During the discussion, it was questioned that there are not enough women

on the editorial board. G. Bodenhausen highlights that G. Otting and himself were specifically approaching multiple female colleagues, but none wanted to take this responsibility. The committee decided that the new board should take it as a key responsibility to include more women as soon as possible.

Finally, the proposal for the foundation of the new AMPERE subdivision and the foundation of the new journal was voted on. Vote was unanimously positive, with one abstention.

Ad 7. M. Ernst appreciated the high attendance at the meeting. For the nomination of new committee members, the committee noted with sadness that a potential nominee from Latvia, Edvards Liepinsh, has recently passed away. Five other candidates were nominated: Indrek Reile, Estonia; Paul Vasos, Romania; Snorri Th. Sigurðsson, Iceland; Predrag Novak, Croatia, and Kristaps Jaudzems, Latvia, for election at the general assembly.

Ad 8. Everyone was informed about the elections upcoming in 2020 and that new Bureau members may be needed, and especially a new president.

Ad 9. In the discussion about varia, the issue was raised that also the committee does feature very few female members. Everyone agreed that attempts should be made to increase their number.

It was also discussed to create a young AMPERE community. No strong support for this initiative was found.

J. Banyš proposed to organize an AMPERE colloquium on phase transitions in Vilnius. This proposal met strong support.

The contract with the publisher Copernicus was signed by the president and Copernicus representatives.

The meeting was closed at 15:00 hours.

Berlin, August 27, 2019

Protocol: Sebastian Hiller

## Minutes of the meeting of the General Assembly of the Groupement AMPERE in Berlin, on August 27, 2019

### Members present:

B. Blümich, M. Ernst, around 160 members (estimate), S. Hiller

### Agenda:

1. Approval of the agenda
2. Approval of the minutes of the AMPERE GA meeting in Nantes, July 4, 2018
3. Report on the state of the AMPERE Society (B. Blümich)
4. Financial report (M. Ernst)
5. Preparation of AMPERE Committee elections (M. Ernst)
6. Open-access magnetic-resonance journal (M. Ernst)
7. Varia

At 18:30 hours, Matthias Ernst opened the meeting.

Ad 1. The agenda was approved as is.

Ad 2. The minutes of the AMPERE General assembly in Nantes, July 4, 2018, were approved.

Ad 3. B. Blümich reported with sadness that Stefano Caldarelli has passed away. An obituary written by Lyndon Emsley was read. Further members of the worldwide magnetic-resonance community were remembered who had passed away: Nicholas Bloembergen, George Feher, Charlie Slichter, Zeev Luz, Sir Rex Richards, Al Redfield and Yoji Arata.

The organizational structure and a list of recent and upcoming meetings were shown and explained by B. Blümich, with particular mention of the EUROMAR, July 5–9, 2020, in Bilbao. (see page 18/19)

P. Giraudeau was thanked for the EUROMAR in Nantes, and Hartmut Oschkinat for the great opening of the EUROMAR 2019 and the fantastic conference so far.

B. Blümich mentioned the prizes which are given out by the society: the AMPERE Prize for Young Investigators is given biannually at the EUROMAR conference; the Ray Andrew Prize is given to an outstanding PhD thesis

at the EUROMAR, and the Ernst Prize is given by the EUROMAR division to recognize a recent achievement. The J Mag Res Young scientist award is given out 4 times by EUROMAR and 6 times by ISMAR at 500 \$ each.

Ad 4. M. Ernst presented the financial report. Finances were stable over the past years. Revenues were equally high as expenses. Subdivisions had healthy finances as well. The AMPERE society possesses financial reserves in reasonable amounts (45'000 CHF + ~120'000 CHF for Andrew prize). Incomes are mainly from membership fees, expenses mainly for conferences, workshops, travel stipends and small administration costs. Subdivisions have their own accounts. Some have more and some have less. In total they have around 100'000 CHF. The EUROMAR division has roughly a fortune of 100'000 CHF. The financial report was unanimously approved, with no abstentions.

Ad 5. M. Ernst proposed 5 persons for election into the AMPERE committee. Indrek Reile, Estonia; Paul Vasos, Romania; Snorri Þór Sigurðsson, Iceland; Predrag Novak, Croatia, and Kristaps Jaudzems, Latvia. They were elected unanimously, with no abstentions.

ADDENDUM: In the week after the election, I. Reile, P. Vasos, P. Novak and K. Jaudzems accepted their election. S. Sigurðsson declined.

Ad 5. M. Ernst informed the assembly that the open-access initiative by G. Bodenhausen and G. Otting with the creation of a new AMPERE subdivision and the new open-access journal "Magnetic Resonance" has been approved by the AMPERE committee earlier that day. Together with the publisher Copernicus, which is a spin-off of the Max Planck Society, the AMPERE society has signed a contract accordingly.

Ad 7. There were no varia.

The meeting was closed at 19:00 hours.

Berlin, 27 August 2019  
Protocol: Sebastian Hiller

## Financial Statement of the Groupement Ampere and Subdivisions

Period from June 15. 2018 to July 31. 2019

	Balance on June 15. 2018	Membership Fees / Registration Payments	Donations/ Conference support	Conferences Grants / Travelgrants/ Membership Fee paid to Ampere	Conference Sponsoring
<b>Groupement Ampere</b>					
Ampere (CHF)	13'727.20	2735			
Ampere (Euro)	30'163.42	22'362.91		23'500.00	
Andrew (CHF)	26'895.74			576.73	
Andrew Depot (CHF)	92'740.44				
<b>Subdivisions</b>					
NMR School (Euro)	1'898.27				
Biol. Solid State (Euro)	15'140.45	750.12		9'019.69	
EPR (CHF)	7'423.80				
Food NMR (CHF)	3'651.95			2'735.00	
MRPM (CHF)	31'321.95				
SMRM (CHF)	47'319.48				
Hyp (CHF)	7'341.40				
<b>Euomar</b>					
Euomar (CHF)	71'622.89				
Euomar (Euro)	41'619.11			20'000.00	

Conference Surplus	Administration Bulletin print Web and Bureau Meetings	Bank Charges / Depot Charges/ Account Closing/ Div./Losses/ carry over	Bank Interests Account carry over, Dividends, gains on value paper	Balance on July 31. 2019
3'530.71	3'183.60	1'283.80		15'525.51
		83.24		28'943.09
		520.60	497.45	26'295.86
			1'557.51	94'297.95
		1'898.27		0.00
	66.00	42.53	1'857.89	8'620.24
			1.85	7'425.65
			0.85	917.80
			7.85	31'329.80
			11.40	47'330.88
			1.85	7'343.25
		12.00		71'610.89
10'000.00	317.34	63.31		31'248.65

# Enable Education Everywhere...



...with **EquipSent!**

## Initial Situation

In high-income countries, scientific equipment is often stored unused after its usage time in research laboratories. Older devices are eventually discarded, even though they are still functional.

In low-income countries, schools and universities are lacking the funds to acquire even the most basic devices for adequate training of talented students. The resulting 'brain-drain' to other countries hinders the self-development in such regions.

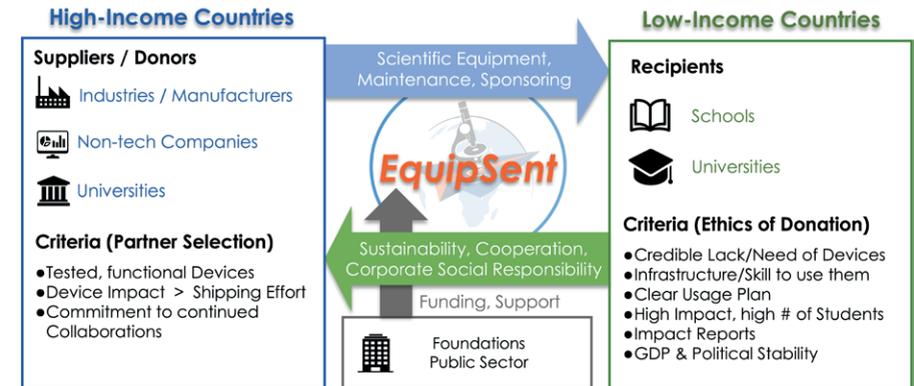
## Our Solution

*EquipSent* seeks to connect these two worlds by directly matching donors of scientific equipment with those in need. As an intermediary between both parties, we reduce administrative efforts and help organizing the shipping, installation and legal contracting. Expenses are shared between the recipient and the industrial sponsors in return for CSR, new markets and advertisement.

## Target Impact

- Access to Education. Students around the world will be granted access to hands-on training and education, rather than theory only.
- Collaboration and Development. The matched donor, sponsor and recipient of equipment are encouraged to collaborate on a long-term basis, which offers learning opportunities on all sides.
- Resource Efficiency & Waste Minimization. The equipment donor profits by reducing costs for space, waste and personnel, while benefitting from a positive image generated through sustainable use.

Founded by a group of ETH students, *EquipSent* is giving a second life to devices, promotes sustainable use and offers access to education and research to more people.



Do you know about no longer used, but functional scientific equipment in your research group or do you know of a university in need?

Do you want to learn more about what we do?

Check out our website [EquipSent.org](http://EquipSent.org) and get in touch with us!

our Partners



## 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.

### **Bernhard. BLÜMICH** *President*

Macromolecular Chemistry, RWTH Aachen University, D-52074 Aachen, Deutschland  
Tel. +49 241 802 64 20, Fax +49 241 802 21 85, e-mail: bluemich@itmc.rwth-aachen.de

### **Janez DOLINŠEK** *Vice President*

Institute Jozef Stefan, Department F5, Jamova 39, SI-1000 Ljubljana  
Tel. +386 1 4773 740, Fax +386 1 4263 269, e-mail: jani.dolinsek@ijs.si

### **Anja BÖCKMANN** *Vice President*

Institute of Biology and Chemistry of Proteins, IBCP, F-69367 Lyon, France  
Tel. +33 472 72 26 49, Telefax +33 472 72 36 04, e-mail: anja.boeckmann@ibcp.fr

### **Matthias ERNST** *Secretary General*

Laboratorium für Physikalische Chemie, ETH Zürich, CH-8093 Zurich, Switzerland,  
Tel. +41 44 632 4366, Fax +41 44 632 16 21, e-mail: maer@nmr.phys.chem.ethz.ch

### **Sebastian HILLER** *Executive Secretary*

Biozentrum, University of Basel, Klingelbergstrasse 50/70, CH-4056 Basel, Switzerland  
Tel. +41 61 207 20 82, e-mail: sebastian.hiller@unibas.ch

### **Sabine VAN DOORSLAER** *EF-EPR Representative*

University of Antwerp, Department of Physics, Campus Drie Eiken, Universiteitsplein 1, 2610 Wilrijk, Belgium, e-mail: sabine.vandoorslaer@uantwerpen.be

### **Melanie M. BRITTON** *SRMR Representative*

University of Birmingham, Birmingham, B15 2TT, UK  
office: +44 121 4144391, e-mail: m.m.britton@bham.ac.uk

### **Yi-Qiao SONG** *MRPM Representative*

Schlumberger-Doll Research, 1 Hampshire Street, Cambridge, MA 02139-1578 USA  
Phone: +1 617 768 2333, e-mail: ysong@slb.com

### **John VAN DUYNHOVEN** *MR-Food Representative*

Unilever N.V., 100 Victoria Embankment, London EC4Y 0DY, United Kingdom, e-mail: john-van.duynhoven@unilever.com

### **Geoffrey BODENHAUSEN** *Hyperpolarisation Representative*

ENS - Département de chimie, 24, rue Lhomond, 75005 Paris, France,  
e-mail: geoffrey.bodenhausen@ens.fr

### **Thomas PRISNER** *Euromar Representative*

Goethe University Frankfurt, Institute of Physical and Theoretical Chemistry, 60438 Frankfurt am Main, Germany, Tel: +49 (0) 69 798-29406, Fax: +49 (0) 69-798-29404, e-mail: prisner@chemie.uni-frankfurt.de

### **Arno KENTGENS** *Euromar Treasurer*

Institute of Molecules and Material, Radboud University, Heyendaalseweg 135, 6525 Aj Nijmegen, Netherland, Tel. +31 024 365 20 78, e-mail: a.kentgens@nmr.ru.nl

### **Beat H. MEIER** *Past President*

Laboratorium für Physikalische Chemie, ETH Zürich, CH-8093 Zurich, Switzerland,  
Tel. +41 44 632 44 01, Fax +41 44 632 16 21, e-mail: beme@nmr.phys.chem.ethz.ch

### **Hans Wolfgang SPIESS** *Honorary Member*

Max-Planck Institut für Polymerforschung, Ackermannweg 10, POB. 3148, D-55021 Mainz, Germany, Tel. +49 6131 379120, Fax +49 6131 379320, e-mail: spiess@mpip-mainz.mpg.de

### **Stefan JURGA** *Honorary Member*

Instytut Fizyki, Uniwersytet im. A. Mickiewicza, Zakład Fizyki Makromolekularnej, Umultowska 85, PL-61-614 Poznan, Poland  
Tel. ++48 61 829 5290, Fax ++48 61 829 5290, e-mail: stjurga@main.amu.edu.pl

## AMPERE Committee

### **Sharon Elizabeth Marie ASHBROOK** (2016 - 2020)

School of Chemistry, University of St. Andrews, North Haugh, St. Andrews, KY16 9ST, United-Kingdom

### **Juras BANYS** (2016 - 2020)

Vilnius University, Department of Radiophysics, Saulėtekio 9 2040 Vilnius, Lithuania

### **Rolf BOELENS** (2016 - 2020)

Bijvoet Center for Biomolecular Research, Utrecht University, Padualaan 8, NL-3584 CH Utrecht, The Netherlands

### **Vladimir CHIZHIK** (2016 - 2020)

University of St. Petersburg, Quantum Magnet.Phén.,Fac.of Physics, RU-198504 St. Petersburg, Russia

### **Peter CROWLEY** (2018 - 2022)

Chemistry, National University of Ireland, University Road, Galway, Ireland

### **Janez DOLINŠEK** (2016 - 2020)

Institute Jozef Stefan, Jamova 39, SI - 1000 Ljubljana, Slovenia

### **Isabella Caterina FELLI** (2016 - 2020)

Department of Chemistry and Center for Magnetic Resonance (CERM), University of Florence Via L. Sacconi 6 50019 Sesto Fiorentino, (FI), Italy

### **Ana Maria Pissarra Coelho GIL** (2018 - 2022)

Department of Chemistry, University of Aveiro, Campus Universitário de Santiago, 3810-193 Aviero, Portugal

### **Patrick GIRAudeau** (2016 - 2020)

Université de Nantes, Faculté des Sciences et Techniques, 2 rue de la Houssinière, 44322 NANTES Cedex 03, France

### **Kristaps JAUDZEMS** (2019 - 2023)

Latvijas Organiskās sintēzes institūts, Aizkraukles 21, Rīga, LV-1006, Latvija

### **Robert KONRAT** (2017 - 2021)

Max F. Perutz Laboratories, Campus Vienna Biocenter 5, 1030 Vienna, Austria

### **Wiktor KOZMINSKI** (2016 - 2020)

Biological and Chemical Research Centre, University of Warsaw, Krakowskie Przedmiescie 26/28, 00-927 Warsaw, Poland

### **Birthe Brandt KRAGELUND** (2018 - 2022)

Department of Biology, University of Copenhagen, Ole Maaløes Vej 5, 2200 Copenhagen, Denmark

### **Predag NOVAK** (2019 - 2023)

Division of Analytical Chemistry, Department of Chemistry, Faculty of Science, University of Zagreb, Horvatovac 102A, HR-10 000 Zagreb, Croatia

### **Miquel PONS** (2016 - 2020)

Institute for Research in Biomedicine, University of Barcelona, Josep Samitier 1-5, 80828 Barcelona, Spain

### **Indrek REILE** (2019 - 2023)

National Institute of Chemical Physics and Biophysics, Akadeemia tee 23, 12618 Tallinn, Estonia

### **Frode RISE** (2018 - 2022)

Department of Chemistry, University of Oslo, PO Box 1033 Blindern, 0315 Oslo, Norway

### **Sharon RUTHSTEIN** (2018 - 2022)

Department of Chemistry, Bar-Ilan University, Ramat-Gam, 5290002, Israel

### **Ferenc SIMON** (2017 - 2021)

Budapest University of Technology and Economics, Műgyetem rkp. 3, 1111 Budapest, Hungary

### **Jiri SPEVACEK** (2016 - 2020)

Inst. of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, 162 - 06 Prague 6, Czechia

### **George SPYROULIAS** (2017 - 2021)

Department of Pharmacy, School of Health Sciences, University of Patras, Panepistimioupoli – Rion, 26504 Patras, Greece

### **Ville-Veikko TELKKI** (2016 - 2020)

Department of Physics, University of Oulu, P.O. Box 3000, 90014 Oulu, Finland

### **Christina THIELE** (2016 - 2020)

Technische Universität Darmstadt, Alarich-Weiss-Strasse 16, 64287 Darmstadt, Germany

### **Daniel TPOGAARD** (2017 - 2021)

Physical Chemistry, Lund University, Box 124, 221 00 Lund, Sweden

### **Sabine VAN DOORSLAER** (2016 - 2020)

SIBAC Laboratory, University of Antwerp, Universiteitsplein 1, B-2610 Wilrijk, Belgium

### **Paul VASOS** (2019 - 2023)

Extreme Light Infrastructure – Nuclear Physics (ELI-NP), Horia Hulubei Institute for Nuclear Physics (IFIN-HH), Reactorului Str. 30, Magurele Campus, Bucharest, Romania

## Emeritus members

### Liudvikas KIMTYS

Department of Physics, Vilnius University, Universiteto Str. 3, VILNIUS 2734, Lithuania

### Fani MILIA

NRC Demokritos, Physics Department, Aghia Paraskevi Attikis, GR - 15310 ATHENS, Greece  
J. HENNEL, Inst. of Nucl. Phys. Ul. Radzikowskiego 152, PL - 31342 KRAKOW 23, Poland

## Honorary members

### Richard R. ERNST

Laboratorium für Physikalische Chemie, ETH Zürich, CH-8093 ZÜRICH, Switzerland

### Jean JEENER

Université Libre - Plaine, CP 223, Bld. du Triomphe, B - 1050 BRUXELLES, Belgium

### Karl Alexander MÜLLER

IBM Zurich Research Laboratory, Säumerstrasse 4, CH - 8803 RÜSCHLIKON, Switzerland

### Kurt WUETHRICH

Inst. f. Molekularbiologie u. Biophysik, ETH Zürich, CH-8093 ZÜRICH, Switzerland

## Guest members

### Alexander PINES

Dept. of Chemistry, University of California, BERKELEY CA 94720, USA, Delegate of ISMAR

### James A. NORRIS

Dept. of Chemistry, University of Chicago, South Ellis Ave. CHICAGO IL 6037-1403, USA  
Delegate of the International EPR Society

### Keith A. McLAUCHLAN

Physical Chemistry Laboratory, Oxford University, South Parks Road, OXFORD OX1 3QZ, UK  
Delegate of the International EPR Society

### David AILION

Dept. of Physics, Univ. of UTAH, 304 J. Fletcher Building, SALT-LAKE-CITY 84112, Utah, USA

### Sung Ho CHOH

Department of Physics, Korea University, SEOUL 136-701, Republic of Korea

### Daniel FIAT

University of Illinois, Dept. of Physiology and Biophysics, POB 6998, CHICAGO IL 60680, USA

### Eiichi FUKUSHIMA

ABQMR, 2301 Yale Blvd., SE, Suite C2, ALBUQUERQUE, NM 87106, USA

## Future conferences

### Ampere Events 2019

8 <sup>th</sup> EFEPR School	Brno (Czech Republic)	November 18-25 2019
------------------------------	-----------------------	---------------------

### non Ampere Event 2019

12 <sup>th</sup> Australian and New Zealand Society for Magnetic Resonance (ANZMAG)	Pullman Bunker Bay Resort (Australia)	November 25-28 2019
---	---------------------------------------	---------------------

### Ampere Events 2020

17 <sup>th</sup> International School-Conference 'Magnetic resonance and its applications' Spinus 2020	Saint Petersburg (Russia)	March 29 to April 4 2020
MR FOOD 2020	Aarhus	June 2-5 2020
Ampere NMR School	Zakopane (Poland)	June 2020
Euromar 2020	Bilbao (Spain)	July 5-9 2020
15 <sup>th</sup> MRPM	Tromsø (Norway)	August 24-28 2020
'HYP20' Hyperpolarized Magnetic Resonance 2020	Lyon (France)	August 30 to September 2 2020

### non Ampere Event 2020

Summer School „General NMR“ Part I	Windischleuba (Germany)	23-29 February 2020
------------------------------------	-------------------------	---------------------

### Ampere Event 2021

Euromar 2021	Protorož (Slovenia)	4-8 July 2021
--------------	---------------------	---------------

