

BULLETIN DU GROUPEMENT

d'informations mutuelles

AMPERE



SE CONNAÎTRE, S'ENTENDRE, S'ENTRAIDER

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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**

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Editorial

Dear members of Groupement AMPERE, this new edition of the „AMPERE Bulletin“ brings about some changes in the AMPERE Bureau. At the EUROMAR 2018 in Nantes, I was elected as Secretary General and Sebastian Hiller as Executive Secretary of AMPERE. I would like to express my thanks (see also page 4) to Gunnar Jeschke who has run the day-to-day business of AMPERE during the past 12 years. It was always a pleasure to work with him and I hope that I will manage to organize the Groupement AMPERE as smoothly as he has. I am very grateful to the people running the back office (Kristina Comiotto) and the web page (Rene Tschaggelar) that they will continue to work with me in the AMPERE office in Zurich. I am sure that this will make the transition a lot smoother.

The articles in this edition of the Bulletin illustrate again the wide range of educational activities that are organized under the name of the Groupement AMPERE: The AMPERE NMR school in Zakopane has since many years been an important meeting to teach students the basics of NMR and at the same time expose them to the latest developments in all areas of NMR. The series of Spinus School-Conferences has been organized for many years but only recently under the umbrella of the AMPERE society. These schools and all the other schools are very important for the education of new students in the field of magnetic resonance. Organizing such schools, finding good teachers, and giving educational talks is a lot of work that is often not fully recognized.

Since last year, AMPERE has implemented financial support for conferences organized by the subdivisions on a competitive basis. All conference organizers are encouraged to apply for support for students or special lectures or other creative new ideas. Short proposals for 2019 (max. two pages) should be sent to the head of the AMPERE Prize Committee (Beat Meier, Email: beme@ethz.ch) before December 31st, 2018. For more details see the webpage at: ampere-society.org (for organizers).

I wish all of you an enjoyable rest of the summer and fall and a good start into the fall semester.



Matthias Ernst

Secretary General, Groupement AMPERE

Portrait: Prof. Thomas Prisner

- why magnetic resonance?

Magnetic resonance combines everything most beautiful: theory, methodology, technology and all kind of applications. It has all diversity you need to not get bored over time and then, on the other side, it always converges to understand the dynamic of a few magnets.

- what is your favorite frequency?

260 GHz

- what do you still not understand?

I believe I understand an isolated two level system quite well by now....

- luckiest experiment you have ever done.

Measuring the spin correlated signal in bacterial reaction centers at W-band frequencies. This was the first real application of the pulsed W-band spectrometer I build in Berlin and the experiment worked so beautifully in the first try! However, I also enjoyed very much an experiment where I wanted to measure the coherent noise of my spin system and found out - after about two months trying everything - that with my equipment I could not achieve this. I learned a lot from this absolutely unsuccessful experiment!

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

Isolating a TWT microwave amplifier from the ground. By this, I got rid from annoying noise on my signal, but when I tried to turn of the amplifier after the measurement the collected electrostatic charge hit me strong enough that I did not try this ever again.

- most memorable conference story

Afternoon hike on a Magnetic Resonance Meeting in Hirschegg: suddenly Dietmar Stehlik decided that we should not take the path but rather directly run down a rather steep slope with stones. And everybody followed him immediately! Soon I saw left, right and even in front of me scientists tumble on the stones or getting stick on mountain pines. In the evening session almost everybody had scratches or was wearing some plasters.

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

Mahatma Gandhi

- when do you get your best ideas?

Biking to the institute

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

Crossing the Alps

- your idea of happiness.

Spending time with my family.



Position:

Professor for Physical Chemistry at the Goethe University Frankfurt
Homepage: www.prisner.de

Awards:

1997 Philipp Morris Research Award
2008 Silver Medal of the International EPR Society
2011 Bruker Lecture of the Royal Society of Chemistry
2014 International Zavoisky Award

Education:

1977-1983 Study of Physics in Heidelberg
1983-1984 Diploma Thesis at the MPI for Medical Research Heidelberg
1984-1988 PhD in Physics at the TU Dortmund. Supervisor K.-P. Dinse
1989-1990 Postdoc at Francis Bitter Magnet Lab at MIT with R. G. Griffin
1990-1996 Habilitation at the Department of Physics of the FU Berlin
1996- Full Professor (C4) at the Goethe University Frankfurt

Interests:

Art, Painting, Hiking, Music

AMPERE Feature

Gunnar Jeschke

Secretary General of the Groupement AMPERE 2006-2018

Prof. Jeschke has been Secretary General of the AMPERE Society for 12 long years. He now is stepping down as new administrative challenges demand his accomplished skills at ETH Zürich. For 12 years he managed the day-to-day business of the AMPERE Society on the sides of former President Beat Meier and current President Bernhard Blümich. Gunnar has been in office just about as long as the EUROMAR conference exists since it succeeded the Congress AMPERE, the European Experimental NMR Conference and the British NMR Discussion Group with its first conference in Veldhoven in 2005. Thus, he not only is a witness but also an integral driver of the unification of the European Magnetic Resonance Community, which now is represented by a wide variety of divisions and activities within the AMPERE Society. Among others, with the invaluable support of his Swiss magnetic resonance colleagues and his office assistant Kristina Comiotto, he modernized the AMPERE home page and kept it meticulously updated as a resource for future, current and past AMPERE events. Moreover, he succeeded in rejuvenating the Bulletin AMPERE, that is, the yellow pages of the Groupement AMPERE as editor in chief with attractive contributions, which are interesting, entertaining and worthwhile reading in successful competition with the office work of most readers. Many of us also remember him as the Chair of the EUROMAR 2014 Conference in Zürich with the memorable Richard Ernst Session.

This long-lasting service to our community is but one of the multiple facets of Gunnar Jeschke. He is one of the internationally most prominent scientists in the EPR community, where he is well known in particular for his distance measurements on proteins and his book on the Principles of Pulse Electron Paramagnetic Resonance which he authored together with Arthur Schweiger in 2001. Others know him as one of the long-time associate editors of the Journal of Magnetic Resonance. Gunnar Jeschke is a fellow of the International Society of Magnetic Resonance. Together with Thomas Prisner received the International Zavoisky Award in 2014, and in 2017 he received the silver medal on instrumentation from the International EPR society.

Gunnar Jeschke grew up in Berlin and studied Chemistry at the University of Dresden, where he graduated in 1992 with a thesis on solid-state NMR spectroscopy. He then spent some time at the RIKEN Institute in Japan



studying magnetic field effects on chemical reactions and subsequently pursued his doctoral work in the Group of Arthur Schweiger for which he was awarded the Medal of ETH Zürich. He subsequently joined the Max-Planck-Institute of Polymer Research in Mainz in 1998 following a postdoctoral position at the University of Bonn. In 2006, he became Professor for Physical Chemistry at the University of Konstanz, and in 2008 he became Professor for Electron Spin Resonance in the Chemistry Department of ETH Zürich. Although German, his webpage reflects Swiss accuracy with great attention to detail. It is highly informative to all those interested in thermodynamics, magnetic resonance, or measurement technology.

Gunnar, speaking for all members of the AMPERE Society, I thank you for your dedicated and long-time service to the European Magnetic Resonance Community as our Secretary General. My hope is that your new responsibilities will still leave you sufficient time to enjoy the pleasure of advancing science along with your students and colleagues, and that your hiking shoes and your bicycle will remain in frequent use by the owner.

Yours cordially,

A handwritten signature in blue ink, which appears to read 'Bernhard Blümich'. The signature is fluid and cursive.

Bernhard Blümich

Report on the Ampere NMR School 2018 Zakopane, Poland

Scientific Committee

B. Blümich (Aachen), Germany, J. Dolinšek (Ljubljana), Slovenia,
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(Warszawa), Poland, D. Lurie (Aberdeen), UK, MacKay (Vancouver),
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L. Szutkowska - Executive Secretary,
R. Markiewicz, Z. Fojud, J. Jencyk, K. Golba, A. Klimaszuk, K. Szutkowski
Z. Pietralik, M. Taube

The AMPERE NMR School was held from 10th-16th June 2018 in Zakopane (Poland) with 84 attendees, including 45 representatives of 23 foreign nationalities. The conference was organized by the NanoBioMedical Centre and the Department of Macromolecular Physics, Faculty of Physics of Adam Mickiewicz University in Poznań, under the auspices of the Groupement AMPERE.



The meeting focused on the basic and advanced NMR techniques and attracted scientists from across the world. Representatives of 19 countries, including: Bulgaria, Colombia, the Czech Republic, China, Finland, France, Germany, Hungary, India, Lithuania, Poland, Russia, Slovakia, Slovenia, Sweden, Switzerland, Taiwan, Ukraine, and the United Kingdom, had the opportunity to exchange knowledge and ideas on recent NMR and related research, to learn about new techniques and developments in this field and to establish new contacts and collaborations.

The programme of the School covered the following topics: NMR relaxometry, NMR diffusometry, Solid State NMR, NMR of quadrupolar nuclei, MRI and Field Cycling MRI, Novel NMR techniques and NMR in biology, medicine and material science.

The lectures were given by:

Prof. Batta Gyula
MOLECULAR DYNAMICS, HIDDEN STATES AND STRESS INDUCED UNFOLDING OF CYCLIC PROTEINS BY SOLUTION PHASE NMR
University of Debrecen, Hungary

Dr. Bielejewski Michał
TRANSLATIONAL DYNAMICS AND ENHANCEMENT EFFECT IN RENEWABLE IONIC GELS
Polish Academy of Sciences, Poznań, Poland

Prof. Blümich Bernhard
1. NMR SPECTROSCOPY WITH COMPACT INSTRUMENTS
2. NANODESTRUCTIVE TESTING OF MATERIALS BY COMPACT NMR
RWTH Aachen University, Aachen, Germany

Prof. Buntkowsky Gerd
SOLID STATE NMR APPLICATIONS IN CATALYSIS AND MATERIALS SCIENCES
Technische Universität Darmstadt, Germany

Prof. Koźmiński Wiktor
HIGH DIMENSIONALITY AND HIGH RESOLUTION NMR EXPERIMENTS FOR BIOMOLECULES
University of Warszawa, Poland

Prof. Kruk Danuta
CONTROVERSIAL INTERPRETATION OF NMR RELAXATION DATA FOR IONIC SYSTEMS
University of Warmia & Mazury in Olsztyn
Olsztyn, Poland

Prof. Kuprov Ilya
NUCLEAR SPIN RELAXATION THEORY FOR PEOPLE WHO HATE MATHEMATICS
University of Southampton, United Kingdom

Prof. Lurie David
MRI BASICS AND RESEARCH ON FAST FIELD-CYCLING MRI
University of Aberdeen, United Kingdom

Prof. Luzar Jože
NMR RELAXOMETRY STUDY OF CEMENT INJECTION PASTES WITH ADDITIVES
Jozef Stefan Institute, Ljubljana, Slovenia

Prof. Mali Gregor
ON THE WAY TO NMR CRYSTALLOGRAPHY
National Institute of Chemistry, Ljubljana, Slovenia

Prof. Meier Beat
SOLID-STATE NMR OF PROTEINS: STRUCTURE AND DYNAMICS
ETH Zurich, Zurich, Switzerland

Prof. Michel Dieter
EPR AND NMR STUDIES ON NITRIC OXIDE (NO) MOLECULES IN LIQUID STATE AND EMBEDDED IN POROUS MEDIA
University of Leipzig, Leipzig, Germany

Prof. Rössler Ernst
ROTATIONAL AND TRANSLATIONAL DYNAMICS IN LIQUIDS, POLYMERS, AND PLASTIC CRYSTALS STUDIED BY FIELD-CYCLING NMR RELAXOMETRY
Universität Bayreuth, Bayreuth, Germany

Dr. Spěváček Jiří
NMR STUDIES OF STIMULI-RESPONSIVE POLYMER SYSTEMS IN SOLUTIONS AND HYDROGELS
Academy of Sciences of the Czech Republic, Prague, Czech Republic

Prof. Stapf Siegfried
COMPLEX FLUIDS AND INTERFACES STUDIED BY DNP-FFC
Technische Universität Ilmenau, Ilmenau, Germany

Prof. Stepišnik Janez
STRUCTURE OF POROUS MEDIA AND HYDRODYNAMIC FLUCTUATIONS IN LIQUIDS OBSERVED BY NMR GRADIENT SPIN ECHO METHODS
University of Ljubljana, Ljubljana, Slovenia

Dr. Telkki Ville
MRI OF MATERIALS AND CHEMICAL REACTIONS
University of Oulu, Oulu, Finland

Dr. Topgaard David
RELAXATION-DIFFUSION CORRELATION IN THE HUMAN BRAIN
Lund University, LUND, Sweden

Prof. Tritt-Goc Jadwiga
PROTON CONDUCTORS BASED ON MICRO- AND NANOCELLULOSE
Polish Academy of Sciences, Poznań, Poland

Programme was enriched by additional 5 workshops including online transmissions from the NanoBioMedical Centre in Poznań, given by:

1. Zbigniew Fojud, Maria Dobies, Mariusz Jancelewicz
NMR RELAXOMETRY
2. Kosma Szutkowski
DIFFUSION STUDIED BY NMR
3. Jacek Jencyk
HIGH RESOLUTION SOLID STATE NMR
4. Witold Andrałójć
TWO-DIMENSIONAL NMR SPECTROSCOPY
5. Tomasz Zalewski
MRI: BASIC PRINCIPLES AND APPLICATION

The participants had the opportunity to present their scientific work in a poster session which consisted of 49 presentations. The prizes were awarded to the authors of the three best posters:

- First place
Grit Sauer, TU Darmstadt
"Fast gas injection gadget for in situ NMR applications to PHIP and SABRE"

- Second place
Gaurav Bhole, University of Oxford
"Practical Pulse Engineering"

- Third place
Dmitry S. Zasukhin, Moscow State University
"Zeolite Y crystallization: in situ MAS NMR study"

The posters were evaluated by the members of the Poster Committee that consisted of: Prof. David Lurie, Dr. Ville Veiko Telkki, Prof. Ilya Kuprov, Prof. Janez Stepišnik

All the winners received prizes accompanied by a certificate.

The Organizing Committee also awarded the most interesting abstracts of young researchers. The winners had the opportunity to make an oral presentation on their research results

The prizes were awarded to the following young researchers:

- Dahiana A. Avila Salazar, Friedrich-Schiller-Universität Jena, Germany
- Vytautas Klimavičius, TU Darmstadt, Germany



All abstracts of the oral presentations and the posters were published as printed proceedings (book of abstracts). The social programme included "All together party", Dinner in the Regional Restaurant with the folk music of the Tatras region, Short Excursion to the Tatra Mountains, and Excursions: Zakopane / Bielanska Cave (Slovakia). Participants also had the opportunity to listen to an organ recital performed by Prof. Dieter Michel. The School is regarded as a successful event based on the plentiful positive feedback received from the participants after the event.

The next edition of the School will be held in Zakopane (Poland) from 23th to 29th June 2019.

First Poster Award, Ampere NMR School 2018 Grit Sauer, Technical University Darmstadt

NMR signal enhancement in hydrogenation reactions with parahydrogen

Grit Sauer^a, Alexey S. Kiryutin^b and Gerd Buntkowsky^a.

^aTechnical University Darmstadt, Eduard-Zintl Institute for Inorganic and Physical Chemistry, Alarich-Weiss Straße 8, D-64287 Darmstadt, Germany

^bInternational Tomography Center, Institutskaya 3A, 630090 Novosibirsk, Russia

Para-Hydrogen Induced Polarization (PHIP) and Signal Amplification By Reversible Exchange (SABRE) are established hyperpolarization methods for signal amplification in NMR and MRI. The signal amplification of both methods is based on spin polarization transfer from a para-H₂ molecule to a target molecule. This requires a catalytic reaction with the parahydrogen, which typically occurs at a transition metal catalyst. Several factors are involved in the efficient transfer of spin polarization in solution, such as a suitable substrate and a corresponding catalyst, but also the amount of dissolved para-H₂ in a given time is a crucial factor. The kinetics of the catalytic reaction determine the efficiency of signal amplification.

For a detailed investigation of this fast reaction kinetics a setup (Figure 1) was developed, which can inject gases such as para-H₂, in a fast, precisely and computer-controlled manner, into the sample tube placed in the NMR probe.^[1]

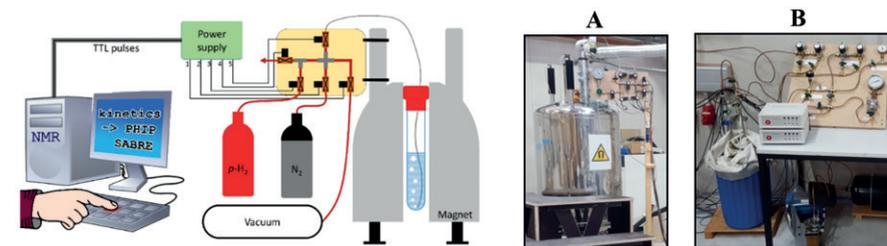


Figure 1. Scheme of the Gas Injection Setup and pictures of the Switching part (A) and the Operation part (B)

In addition, an inert gas such as He or N₂ can be applied to degas the sample solution or to stop the reaction. The gases are controlled by magnetic solenoid valves, which are synchronized with fast electric TTL (Transistor-Transistor Logic) pulses and thus can be integrated into the NMR pulse program. With this device, it is possible to achieve hydrogen saturation at pressures of 0-8bar in the solution within less than 10s. NMR spectra can be taken immediately after hydrogen injection with a delay of less than 1s.

Due to the computer-controlled gas injection, well reproducible polarized spectra (relative error of $\pm 3\%$) with a high spectral resolution can be achieved, which allows quantitative NMR measurements. Three applications of this setup are shown, namely the PHIP kinetics, a SABRE and a PANEL (PARTially Negative Line) experiment.^[2]

Acknowledgements

This work has been supported the German Research Foundation under contract BU 911-22-1 and by the Russian Science Foundation (grant No. 15-13-20035)

References

^[1] Kiryutin, A. S.; Sauer, G.; Hadjiali, S.; Yurkovskaya, A. V.; Breitzke, H.; Buntkowsky, G., *J. Magn. Reson.* 2017, 285, 26-36.

^[2] Kiryutin, A. S.; Sauer, G.; Yurkovskaya, A. V.; Limbach, H.-H.; Ivanov, K. L.; Buntkowsky, G., *J. Phys. Chem. C* 2017, 121 (18), 9879-9888

Second Poster Award, Ampere NMR School 2018 Gaurav Bhole, University of Oxford

Practical Pulse Engineering

Gaurav Bhole and Jonathan A. Jones.
Centre for Quantum Computation, Clarendon Laboratory,
University of Oxford, Parks Road OX1 3PU, United Kingdom

A robust control over the dynamics of a quantum system is indispensable for any quantum technology. Since the past decade, there has been an increasing growth in the use of numerical optimization algorithms for controlling and implementing operations on a quantum processor. Gradient Ascent Pulse Engineering (GRAPE)^[1] is one such algorithm developed in 2005 in the context of controlling nuclear spins in NMR.

Using certain approximations in gradient evaluations and a trade-off between storage and speed, this algorithm becomes feasible for iterative evaluation of quantum dynamics required for the optimizations, which was earlier thought to be impossible. Yet, the GRAPE algorithm relies on heavy usage of matrix exponentiation which is a bottle-neck. With the realisation that the propagators in GRAPE algorithm can be approximated by Suzuki-Trotter formula along with avoiding unnecessary operations we propose GRAPE algorithm without matrix exponentiation^[2]. This procedure results in a substantial speedup with a negligible error in propagation error, thus providing a practical approach to pulse engineering.

Acknowledgements

Gaurav Bhole acknowledges the support from Felix Scholarship.

References

^[1] Khaneja, N., Reiss, T., Kehlet, C., Schulte-Herbrüggen, T., & Glaser, S. J. (2005). Optimal control of coupled spin dynamics: Design of NMR pulse sequences by gradient ascent algorithms. *Journal of magnetic resonance*, 172(2), 296-305.

^[2] G. Bhole and J. A. Jones (2018), Practical Pulse Engineering: Gradient Ascent Without Matrix Exponentiation, *Frontiers of Physics* 13, 130312.

Third Poster Award, Ampere NMR School 2018
Dmitry S. Zasukhin, Lomonosov Moscow State University

Zeolite Y Crystallization: *in situ* MAS NMR Study

Dmitry S. Zasukhin^a, Alexander V. Yakimov^a, Yury G. Kolyagin^{a,b}, Peter N.R. Vennestrøm^c, Linn E. Sommer^d, Irina I. Ivanova^{a,b}.

^aDepartment of Chemistry, Lomonosov Moscow State University, Leninskiye Gory 1, bld. 3, 119991 Moscow, Russia

^bA.V. Topchiev Institute of Petrochemical Synthesis, Russian Academy of Science, Leninskiy prospect, 29, 119991 Moscow, Russia

^cUmicore Denmark ApS, Nøjsomhedsvej 20, DK-2800 Kgs. Lyngby, Denmark

^dHaldor Topsøe A/S, Haldor Topsøes Allé 1, DK-2800 Kgs. Lyngby, Denmark

Zeolite Y is a well-known catalyst widely used in industrial processes such as cracking of heavy oil fractions. The improvement of existing synthetic procedures and rational design of novel ones require the profound understanding of the mechanism of zeolite Y formation. This information can be best obtained by spectroscopic *in situ* techniques, among which MAS NMR is one of the most informative, since it can follow the fate of various nuclei both in solution and in solid state.

In situ studies of zeolite Y crystallization were carried out at 70°C in special NMR autoclave cell ^[1] placed into 7 mm ZrO₂ MAS-rotor and rotated at 5 kHz. During the experiment the ¹H, ²³Na, ²⁷Al and ²⁹Si MAS NMR spectra were continuously recorded.

²⁷Al MAS NMR and ²⁹Si CP/MAS NMR (Fig. 1) allowed monitoring gradual transformation of amorphous aluminosilicate phase into crystalline zeolite Y. At the same time, no changes in ²⁹Si DP/MAS NMR were observed. Based on the spectroscopic data obtained, the mechanism of zeolite Y crystallization was attributed to solid-solid rearrangement within the solid phase of the gel.

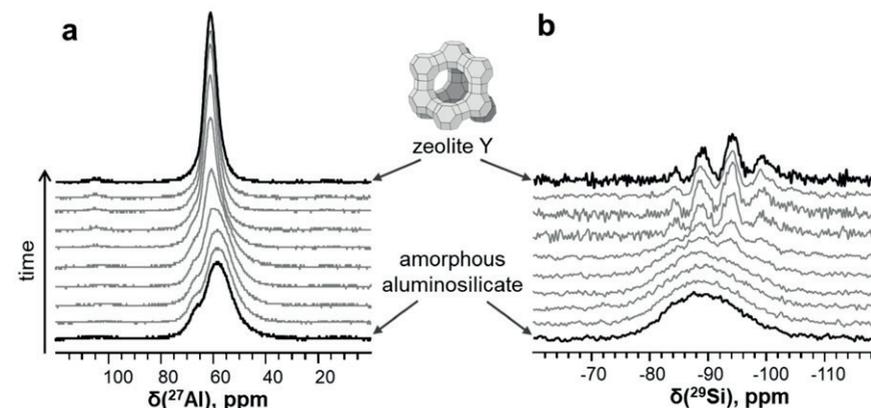


Figure 1. ²⁷Al MAS NMR (a) and ²⁹Si CP/MAS NMR (b) spectra obtained during *in situ* study of zeolite Y crystallization.

Acknowledgements

The authors thank the Russian Science Foundation for the financial support (grant №14-23-00094). A.V.Y. gratefully acknowledges Haldor Topsøe A/S for PhD fellowship.

References

^[1] I. I. Ivanova, Y. G. Kolyagin, I. A. Kasyanov, A. V. Yakimov, T. O. Bok, D. N. Zarubin. *Angew. Chem. Int. Ed.* 2017, 56, 15344 –15347.

First Announcement

Saint Petersburg State University
16th International School-Conference



Spinus 2019 «Magnetic resonance and its applications»

Saint Petersburg, 31 March – 5 April 2019
<http://spinus.spb.ru>
spinus@spinus.spb.ru

Invitation

Welcome to the 16th International School-Conference „Magnetic resonance and its applications“ (Spinus 2019) organized by Saint Petersburg State University with March 31 to April 5, 2019. The goal of “Spinus” is to provide a platform to young scientists for the use of all aspects of magnetic resonance methods and techniques, as well as computational and theoretical approaches, for the solving of fundamental and applied problems in physics, chemistry, medicine and biology. The number of participants is limited to 200 persons.

Scope

The scope of the Conference includes the following topics:

- Modern trends in NMR, ESR and NQR
- Magnetic resonance for fundamental science
- Magnetic resonance imaging
- Computer Modeling
- Earth's field NMR
- Magnetic resonance in industry
- Related areas

The official language of the “Spinus-2019” is English.

Extended abstracts will be published in the Book of Abstract.

Selected papers of participants will be published in a special issue of “Applied Magnetic Resonance”.

Application to Spinus 2019

The application for Spinus-2019 is available at the conference website:
<http://spinus.spb.ru>.

If you were registered for Spinus 2018, your account is still valid and in this case you can create an application for Spinus-2019 in your profile but you should inform the Organizing Committee about it by E-mail:
spinus@spinus.spb.ru

Conference Fee

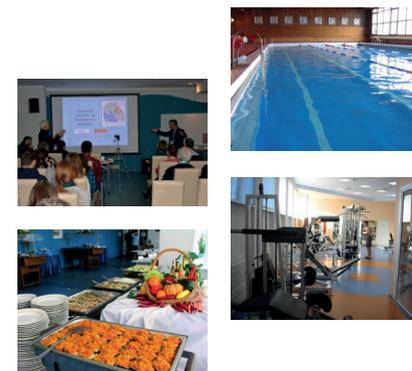
The registration fee is 13000 rub. (≈ 175 €) for active participants and 6500 rub. (≈ 85 €) for young scientists (students and Ph.D. students) and accompanying person. For Russian citizens (their participation is supported by Russian funds) the fee is 4000 rub and 2000 rub, respectively. Registration fees include organization costs, “Spinus 2019” materials, welcome-party, coffee breaks, transportation in the days of arrival and departure.

Participants who create an application for “Spinus 2019” and download the abstract template (<http://spinus.spb.ru>) before November 1st, 2018, will get 20% discount on the registration fee.

For non-citizens of Russia: If one year Ampere Member fee (35€ for regular participant / 17,5€ for student) is paid, the registration fee will be reduced by this amount.

Location

“Spinus-2019” will take place at the hotel „Baltiets“ in Repino on the beach of the Gulf of Finland, 30 km north-west from the center of St. Petersburg (<http://baltiets.ru/>). Estimated minimal cost for a one-day stay in the hotel (full board including also swimming pool and sauna) is 3600 rub (≈ 52 €) for two persons in a double room, i.e. 1800 rub per person. The exact price will be known later (February 2019). It is possible to book a single room.



Abstract and Paper Submission

Abstracts up to 3 pages (including tables and figures) in MS Word format, according to the conference template, should be uploaded to your Application Spinus-2019 until the 1st of March, 2019 (if you have a problem, please, ask by e-mail: spinus@nmr.phys.spbu.ru). The abstract template is available on the website.

All accepted abstracts will be placed in Russian Science Citation Index and will be available at: www.elibrary.ru

In 2019 selected papers of the participants will be published in a special issue of "Applied Magnetic Resonance" with the standard reviewing process (the journal is indexed by Web of Science and Scopus). The journal site: <http://www.springer.com/materials/journal/723>

Articles prepared in accordance with the requirements of the journal should be sent to the e-mail address: v.chizhik@spbu.ru (please put the subject "Spinus-2019 AMR-paper"). Deadline for the manuscript submission: May 30, 2019.

Organizing Committee

Chairman: Dr. Sci. Denis Markelov
Vice-chairman: M. Sc. Alexandr Ievlev
Committee members: Dr. Andrey Egorov
Dr. Marina Shelyapina
Dr. Pavel Kupriyanov
Dr. Konstantin Tutukin
M. Sc. Timofey Popov

Scientific adviser of the School-Conference "Spinus":
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Facebook: <https://www.facebook.com/groups/SPINUS/>
Vkontakte: https://vk.com/spinus_iys



Minutes of the meeting of the Ampere Bureau in Nantes, France, on July 3, 2018

Members Present:

B. Blümich, B. Meier, G. Jeschke, T. Prisner, M. Ernst, A. Böckmann,
G. Bodenhausen

Excused:

J. Dolinšek, M. Britton, Y.-Q. Song

Agenda

1. Approval of the minutes of the AMPERE Bureau meeting in Zürich March 22, 2018
2. Financial Report (G. Jeschke)
3. Preparation of Committee elections by the General Assembly (G. Jeschke)
4. Preparation of Bureau elections by the Committee (B. Blümich)
5. Legal issues with funding flow to conferences (G. Jeschke)
6. Varia

At 13:10 hours G. Jeschke opened the meeting.

Ad 1.

The minutes of the AMPERE Bureau meeting in Zürich, March 22, 2018, published in the AMPERE Bulletin 271, were approved unanimously.

Ad 2.

G. Jeschke explained the current status of the finances of AMPERE (see pp 26). The finances are stable and the slight decrease is due to the payment of prizes and student stipends while membership fees have not yet been received. The rest of the money is owned by the subdivisions and only they can decide on the use of their money which is only administered by AMPERE. The financial report will be presented to the AMPERE Committee and the General Assembly has to approve it. For the General Assembly, the report will be split into AMPERE and the subdivisions to make it clearer where the money belongs to. There is also a dormant AMPERE school account where it is unclear who is responsible for the money. The Bureau will investigate and discuss how to use the money.

Ad 3.

There were some proposals from the AMPERE Committee members for additional members of the AMPERE Committee from countries which are currently not represented. The AMPERE Bureau suggests to the AMPERE Committee the following additional members: Birthe Kragelund (DK), Ana M. Gil (PT), Peter Crowley (IE), Frode Rise (NO). They have to be elected by the General Assembly for a four year term. The proposal will be discussed in the AMPERE Committee meeting tomorrow. In two years we have to discuss the first reelections or replacement of Committee members.

Ad 4.

G. Jeschke wishes to step down after 12 years being Secretary General of AMPERE due to new obligations at ETH Zürich. B. Blümich thanked him for all the work and effort that he put into the Groupement AMPERE during this time. The Bureau proposes to the AMPERE Committee M. Ernst as Secretary General and S. Hiller as Executive Secretary. The Executive Secretary does not have to be based in Switzerland but it is required that he comes to Zürich for the Bureau meetings. For the Secretary General a residence in Switzerland is helpful to ease interactions with the bank.

Ad 5.

There are more and more requests by conferences that AMPERE signs contracts and registers as a vendor for paying money for student travel stipends or for receiving the membership fees. If we give money, we insist on applying Swiss laws to the contract signed. Currently this is a problem in France and the US where in addition IRS forms are required for payments. There was no clear decision how to act on this. One option is to hire an international tax lawyer which could be quite expensive. Another option is to balance the membership fees with student stipends to minimize the money transfer. Furthermore, to eliminate transfer of membership fees from subdivisions and other AMPERE events to AMPERE, separate AMPERE membership registration in addition to the event registration could be considered, as is common practice with other conferences. The Bureau will look into the options in more detail and see what can be done. At the AMPERE Committee, the problems will be reported and the members asked for suggestions how to deal with such situations.

Ad 6.

Arno Kentgens has been elected treasurer of EUROMAR and will become a Bureau member.

The AMPERE membership fee for the combined ISMAR/EUROMAR 2019 will be the same as ISMAR charges (25.- Euro for full members, 12.50 Euro for

students). Thomas Prisner will discuss this with the Chair of the ISMAR/EUROMAR 2019.

It is currently unclear how registration fees for prize winners are covered. For the AMPERE Prize, the registration is waived by the conference organizer and the travel/accommodation has to be paid by the prize winner. For the Andrew Prize, AMPERE pays travel and registration fee. For the Richard Ernst prize, the registration is waived.

At 14:20 hours G. Jeschke closed the meeting and thanked all the present members for their time and effort.

Nantes, 3.7.2018
Matthias Ernst

Minutes of the meeting of the Ampere Committee in Nantes, France, on July 4, 2018

Members Present:

B. Blümich, B. Meier, G. Jeschke, M. Ernst, G. Bodenhausen, A. Böckmann, C. Thiele, I. Felli, J. Banys, V.-V. Telkki, W. Kozminski, P. Giraudeau, S. Ashbrook, D. Topgaard, D. Goldfarb, C. Redfield, T. Prisner

Excused:

J. Dolinšek, R. Boelens, S. van Doorslaer, M. Pons, V. Chizhik, G. Spyroulias

Agenda

1. Approval of the Agenda
2. Approval of the minutes of the AMPERE Committee meeting in Warsaw, July 4, 2017
3. Financial report of the secretary general (G. Jeschke)
4. Preparation of Committee member elections by the GA (G. Jeschke)
5. Election of Secretary General and Executive Secretary (B. Blümich)
6. Legal issues with funding flow to conferences (G. Jeschke)
7. Varia

At 13:10 hours G. Jeschke opened the meeting.

Ad 1.

The agenda was approved unanimously.

Ad 2.

The minutes of the AMPERE Committee meeting in Warsaw, July 4, 2017, published in the AMPERE Bulletin 268, were approved unanimously.

Ad 3.

G. Jeschke gave an overview (see pp 26) over the finances of the Groupement AMPERE. The finances are good with little changes in the total amount since last year. For the formal presentation at the General Assembly, the accounts of AMPERE and of the subdivisions will be presented on separate pages to make a clear distinction. There were a number of questions raised by the Committee members: (i) Where does the money for the Andrew Prize come from? The widow of Raymond Andrew donated this money to AMPERE for a student prize. We try to pay the Andrew Prize out of the interest but this is currently very difficult due to the low interest rates. Therefore, the amount is slowly decreasing which is in agreement

with the wishes of Ms. Andrew. (ii) Why does EUROMAR have two accounts for CHF and Euro? This can be changed if the new EUROMAR treasurer (A. Kentgens) wants to do this. It is unclear why there were initially two accounts. The Varian Prize account is depleted and has been closed. There will be no further Varian Prizes given by EUROMAR.

Ad 4.

The AMPERE Bureau proposes the election of four additional members (Birthe Kragelund (DK), Ana M. Gil (PT), Peter Crowley (IE), Frode Rise (NO)) from countries that are not represented in the AMPERE Committee. There are currently 18 AMPERE Committee members (plus the members of the AMPERE Bureau) which were elected for a four year term at the last two General Assemblies. The proposal was discussed by the AMPERE Committee and will be presented to the General Assembly. In addition, D. Goldfarb wants to step down as a member of the AMPERE Committee and proposes S. Ruthstein from Bar-Ilan University as the new representative for Israel. This proposal was added to the list for the General Assembly which will vote on the Committee Members. Iceland has currently no member in the AMPERE Committee. We will try to find a representative for Iceland next year.

There was also discussion about the duties of the AMPERE Committee. The AMPERE Committee is elected by the General Assembly and is the main decision making body of the Groupement AMPERE and elects for example the AMPERE Bureau members. It is our vision that AMPERE organizes the European magnetic-resonance community and the members of the AMPERE Community should act as the link to the national magnetic-resonance societies.

Ad 5.

G. Jeschke has decided to step down as Secretary General after 12 years. B. Blümich thanks him for all the work he has done and the many projects he has initiated or improved. The proposal of the AMPERE Bureau is to elect M. Ernst as new Secretary General and S. Hiller as new Executive Secretary. The Committee discussed the proposals and elected the two officers unanimously.

Ad 6.

G. Jeschke informed about legal issues with transfer of money to and from conferences that require more and more paperwork. There could be legal risks for the Secretary General signing the papers as well as for the Groupement AMPERE. The AMPERE Committee discussed whether legal insurance is required and how such problems could be circumvented.

Furthermore, to eliminate transfer of membership fees from subdivisions and other AMPERE events to the AMPERE account, separate AMPERE membership registration in addition to the event registration could be considered, as is common practice with other conferences. The ISMRM, for example, requires to separate payments for membership fees and for the conference. While this is a bit cumbersome, it is the cleanest and most transparent solution. Another option is to balance membership fees and stipends and only make net transfers. The Bureau will discuss this issue again and try to find a solution.

Ad 7.

It would be good to have more funding options for conferences and student support at conferences. Some time ago, EUROMAR had obtained ESF support for the EUROMAR conference and we should look into funding options within Horizon2020. All members of the AMPERE Committee are asked to look into funding opportunities that AMPERE as a European organization could apply for to support our activities (conferences and schools). This will be mentioned in the next email to all Committee members and also in the upcoming Bulletin. The Bureau will discuss the suggestions at its next meeting.

At 14:15 hours G. Jeschke closed the meeting and thanked all the present Committee members for their time and effort.

Nantes, 4.7.2018
Matthias Ernst

Minutes of the meeting of the General Assembly of the Groupement Ampere in Nantes, France, on July 4, 2018

Agenda

1. Approval of the Agenda
2. Approval of the minutes of the AMPERE Committee meeting in Warsaw, July 4, 2017
3. Report on the state of AMPERE (B. Blümich)
4. Financial report of the secretary general (G. Jeschke)
5. Election of the AMPERE Committee members
6. Varia and closing remarks (B. Blümich)

At 19:10 hours G. Jeschke opened the meeting.

Ad 1.

The agenda was accepted unanimously.

Ad 2.

The minutes of the AMPERE General Assembly in Warsaw, July 5, 2017, published in the AMPERE Bulletin 268, were approved unanimously.

Ad 3.

B. Blümich reported on the state of the Groupement AMPERE. He reminded the participants of the passing away of Nicolaas Bloembergen and Charles Slichter during the past year. He thanked the Secretary General G. Jeschke for all the improvements that he introduced during his terms. The webpage was renewed and has up-to-date information on the conferences organized by AMPERE and other activities. The Bulletin AMPERE has also more interesting content and is an important source of information about the society. The biggest event in the past year was the EUROMAR 2017 in Warsaw with the Richard R. Ernst prize given to Bob Griffin. But there are many more events organized under the Groupement AMPERE like the annual NMR school in Zakopane or new activities like the Hyperpolarization subdivision that organizes the HYP18 conference this summer in Southampton. AMPERE supports conferences by student travel grants and some of this money is now distributed in a competitive way by inviting the subdivisions to propose new and innovative ways for using this money. The Groupement AMPERE is structured such that the general assembly is the supreme power which elects the members of the AMPERE

Committee. The AMPERE Committee is the body that takes most decisions and elects the Bureau members which do the day-to-day work for the Groupement AMPERE. At its last meeting, the AMPERE Committee elected M. Ernst as Secretary General and S. Hiller as Executive Secretary because G. Jeschke wanted to step down as Secretary General due to additional obligations at the university. B. Blümich thanked G. Jeschke for all the work he had done during the past 12 years in the AMPERE Bureau. There was also discussion in the AMPERE Committee for a new initiative to obtain EU funding for the conference activities of the Groupement AMPERE.

Ad 4.

G. Jeschke explained the finances of the Groupement AMPERE (see pp 26). The finances are stable with a slight decrease in the fortune of the society due to payments for the student travel grants while membership fees from conferences have not yet been paid. The accounts of the subdivisions also show only small changes with two exceptions (Biological Solid-State NMR School and SRMR due to active conferences). Finally the EUROMAR finances are also quite healthy. The subdivision accounts are directly managed by the subdivisions and not by AMPERE.

The assembly approved the financial report unanimously with no abstentions.

Ad 5.

The AMPERE Bureau and the AMPERE Committee propose four additional members for the AMPERE Committee from countries which are currently not represented (Birthe Kragelund (DK), Ana M. Gil (PT), Peter Crowley (IE), Frode Rise (NO)) for a four year term. In addition Sharon Ruthstein (IL) is proposed as a Committee member for Israel because D. Goldfarb (IL) decided to step down as a member of the AMPER Committee. The new members of the AMPERE Committee were elected unanimously with one abstention.

Ad 6.

Varia:

Bernhard Blümich thanked Gunnar Jeschke once more for his long term as Secretary General of the Groupement AMPERE and all the work he has put into the society.

At 19:40 hours G. Jeschke closed the meeting and thanked all the present AMPERE members for their time and effort.

Nantes, 4.7.2018, Matthias Ernst

Balance of the Accounts of the Groupement Ampere and Subdivisions

Period from June 15. 2017 to June 15. 2018

	Balance on June 15. 2017	Membership Fees / Registration Payments	Donations/ Conference support	Conferences Grants / Travelgrants	Conference Sponsoring	Conference Surplus
Groupement Ampere						
Ampere (CHF)	17'709.10					
Ampere (Euro)	28'425.90	9'814.44		8'000.00		
Andrew (CHF)	27'949.27			1'147.28		
Andrew Depot (CHF)	92'240.10					
Subdivisions						
NMR School (Euro)	1'946.27					
Biol. Solid State (Euro)	2'315.76	1'263.00	11'699.45			
EPR (CHF)	7'421.95					
Food NMR (CHF)	3'651.05					
MRPM (CHF)	31'314.10					
SMRM (CHF)	35'440.35			1'890.00		13'786.38
Hyp (CHF)	7'339.55					
Euomar						
Varian Account (USD)	1'542.39					
Euomar (CHF)	71'634.89					
Euomar (Euro)	46'126.88			3'904.90	6'298.34	4'500.00

Administration Bulletin print Web and Bureau Meetings	Bank Charges / Depot Charges/ Account Closing	Bank Interests Account carry over, Dividends	Gains on Value Paper	Balance on June 15. 2018
3'969.90	12.00			13'727.20
35.00	41.92			30'163.42
	404.05	497.80		26'895.74
			500.34	92'740.44
	48.00			1'898.27
71.76	36.00			15'140.45
		1.85		7'423.80
		0.90		3'651.95
		7.85		31'321.95
	26.00	8.75		47'319.48
		3.75		7'341.40
	1'542.39			closed
	12.00			71'622.89
	73.70	1'279.36		41'619.11

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.

Executive Officers 2016 - 2019

President	Bernhard Blümich
Vice Presidents	Janez Dolinšek Anja Böckmann
Secretary General	Matthias Ernst
Executive Secretary	Sebastian Hiller
EF-EPR Representative	Sabine van Doorslaer
SRMR Representative	Melanie M. Britton
MRPM Representative	Yi-Qiao Song
MR-FOOD Representative	John van Duynhoven
Hyperpolarisation Representative	Geoffrey Bodenhausen
EUROMAR Representative	Thomas Prisner
EUROMAR Treasurer	Arno Kentgens
Hyperpolarisation Representative	Geoffrey Bodenhausen
Past President	Beat Meier
Honorary Member	Hans Wolfgang Spiess
Honorary Member	Stefan Jurga

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Future conferences

Ampere Events 2018

Ampere Biological Solid-State NMR School	Palma de Mallorca (Spain)	October 21-26 2018
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Ampere Events 2019

16 th International Youth School Conference „Magnetic resonance and its applications - Spinus 2019“	Saint Petersburg (Russia)	March 31 to April 1 2019
Ampere NMR School 2019	Zakopane (Poland)	June 23-29 2019
15 th ICMRM	Paris (France)	August 18-22 2019
ISMAR / Euromar 2019	Berlin (Germany)	August 25-30 2019
11 th Alpine Conference on Solid-State NMR	Chamonix	September 15-19 2019

Ampere Events 2020

Euromar 2020	Bilbao (Spain)	July 2020
,HYP20` Hyperpolarized Magnetic Resonance 2020	Lyon (France)	August 30 to September 2 2020

