



TUM

Technische Universität München

13th  ICMRM
2015

International Conference on Magnetic Resonance Microscopy

Materials, Molecular Processes and Engineering
The Colloquium on Mobile MR

Munich, Germany | 2nd - 6th August, 2015

Conference Chair: Axel Haase

www.icmrm2015.com



CONFERENCE SCOPE



Dear colleagues,

It is a pleasure to welcome you to the 13th International Conference on Magnetic Resonance Microscopy in Munich, Germany at the Research Campus Garching. The conference is held under the auspices of the Spatially Resolved Magnetic Resonance (SRMRM) Division of the AMPERE (Atomes et Molécules Par Études Radio-Électriques) Society. The series of these conferences started in 1991 in Heidelberg, Germany and was continued as a biannual meeting (originally called “Heidelberg Conferences”). The last five meetings were held in Cambridge, UK (2013), Beijing, China (2011), Montana, USA (2009), Aachen, Germany (2007), Utsunomiya, Japan (2005).

The aim of the conferences is to showcase the most recent advances in the development and application of magnetic resonance microscopy. The 13th ICMRM in 2015 welcomes more than 200 attendees from 15 countries. The conference will include educational sessions on Sunday, August 2nd with 5 tutorials describing the basics of MR coils, MR excitation pulses and a review about diffusion MRI. Furthermore, an introduction into MR in materials and compact NMR systems will be given. The program of the ICMRM includes 14 invited lectures and 46 oral presentations selected by a reviewing committee from submitted abstracts. In addition 115 posters will be presented during two poster sessions and available to view for the entire conference.

The ICMRM starts with an opening lecture given by Jeff Reimer. The official conference dinner will be held in the Senate Room of the Parliament of the State of Bavaria (Bayerischer Landtag). During the dinner, there will be a scientific lecture given by Warren S. Warren. There will be – as in the last conference – a Young Investigator Award Competition. Six finalists have been chosen by a panel of international reviewers. The finalists will give oral presentations during an afternoon session on Tuesday, August 4th. The winner of this competition will receive the “Sir Paul Callaghan Young Investigator Award”, in memory of the scientific contributions of one of the leading scientists in the field of magnetic resonance.

The ICMRM 2015 includes the “Colloquium of Mobile NMR” as it has been the case during the last conference in Cambridge, 2013. There will be two scientific sessions on “Mobile and low field NMR” on Wednesday and Thursday. The ICMRM 2015 shows many basics in spatially resolved magnetic resonance in solids, porous media, and biological tissue. In addition many applications of magnetic resonance to

biological, engineering, and biomedical sciences will be presented. The conference will also include technological advances in magnetic resonance instruments and all kinds of exotic experiments.

The local organizers welcome you to the Research Campus in Garching of the Technische Universität München (TUM). TUM was founded in 1868 by the Bavarian King Ludwig II who was famous for the creation of well-known castles (e.g. Neuschwanstein). He was a great supporter of arts, music, but also natural sciences and engineering. Today the university has 37.000 students, more than 500 professors in 13 departments in areas of engineering, sciences, and medicine. TUM is one of the highest ranked excellence universities in Germany. At the TUM research campus Garching (approximately 10 km north of the city of Munich) the departments of Computer Sciences, Mathematics, Chemistry, Physics, and mechanical engineering are located together with Max Planck Institutes.

The ICMRM will be held in the building of the Department of Informatics and Mathematics. The campus can be easily reached by the Munich underground train (U6). The U6 train connects all hotels for the conference and the Munich City Center. When you arrive at the U6 station at the Campus you will notice that many famous scientists which were connected to the university are displayed at the station's walls, including Werner Heisenberg. He stated "What we observe is not nature itself, but nature exposed to our method of questioning": an excellent motto for our field of research "nuclear magnetic resonance".

Axel Haase
Conference Chair

CONFERENCE SCHEDULE

	Sunday, Aug 2 nd	Mon, Aug 3 rd	Tue, Aug 4 th	Wed, Aug 5 th	Thu, Aug 6 th
09:00					
10:00	Arrival and Registration	Magnetic Resonance Microscopy	MRI in Porous Media II	Mobile and Low-field MR I	Flow and Diffusion MR I
11:00		Coffee break	Coffee break	Coffee break	Coffee break
12:00		Exotic and Emerging MR I	Hyperpolarisation and Biomedical MR I	MR in Engineering	General Meeting of the AMPERE Division
13:00		Lunch			Mobile and Low-field MR II
14:00	Educational I		Lunch and Poster (odd-numbered)		Lunch
15:00	Coffee break				
16:00	Educational II	Coffee and Poster (even-numbered)	Hyperpolarisation and Biomedical MR II	Excursions	Flow and Diffusion MR II / Exotic and Emerging MR II
17:00	Coffee break		Coffee break		
18:00	Conference Opening Opening Lecture	MR in Porous Media I	Young Investigator Award	Conference Reception and Dinner	Excursion
19:00	Welcome Reception Bavarian Buffet				

Sunday, August 2nd

09:00-
18:00 Registration

Time **Speaker** **Title**

Session: Educational I

Chair: E. Fukushima

12:30 **S. Junge** Hunting for SNR – from birdcage coils to cryogenically cooled coils for small animal MRI

13:15 **D. Sugny** Optimal control of spin systems with applications in magnetic resonance imaging

14:00 **M. Menzel** Introduction to diffusion MRI

14:45 Coffee break

Session: Educational II

Chair: P. Galvosas

15:15 **B. Balcom** Magnetic resonance imaging of materials

16:00 **B. Blümich** Compact NMR

16:45 Coffee break

Conference Opening

17:30 **A. Haase** Introductory Remarks

17:40 **J. Reimer** The existential joy of nuclear spin

18:30-
22:00 Welcome reception – Bavarian buffet and drinks

Monday, August 3rd

Time	Speaker	Title and authors
Session: Magnetic Resonance Microscopy Session: Y. Xia		
09:00	G. A. Johnson	Magnetic resonance histology
09:30	L. Ciobanu	High resolution fMRI: a technique to investigate single cell behavior
10:00	Y. Zhang	Two dimensional spatially resolved T2 map implemented on compact Halbach magnet <i>Y. Zhang, L. Xiao, B. Blümich, X. Li</i>
10:15	A. Alia	In vivo 2D L-COSY MR spectroscopy at ultra-high field to probe membrane degradation during Alzheimer's disease <i>A. Alia, N. Braakman</i>
10:30	Coffee break	
Session: Exotic and Emerging MR Chair: D. Kuethe		
11:00	V. C. Behr	MRI meets MPI: towards bimodal scanners
11:30	D. Sakellariou	Pre-clinical magic angle field spinning MRI magnet for localized NMR spectroscopy <i>D. Sakellariou</i>
11:45	G. Pavlovskaya	Molecular-mechanical link in a shear-induced self-assembly of a functionalised biopolymeric fluid <i>G. Pavlovskaya, T. Meersmann</i>
12:00	B. Newling	Mapping B1-induced eddy current effects near metallic structures in MR images: a comparison of simulation and experiment <i>S. Vashae, F. Goora, M. Britton, B. Newling, B. Balcom</i>

12:15	A. Vilter	3D motion of magnetic particles in rotational drift spectroscopy <i>A. Vilter, M. A. Rückert, V. J. F. Sturm, T. Kampf, V. C. Behr</i>
12:30	Lunch	
		Session: MR Hardware Chair: U. Nevo
13:30	L. Wald	New directions for brain MRI hardware and acquisition
14:00	K. Takeda	Unusual NMR experiments using home-made and open-resource system
14:30	P. Vogel	uTWMPPI – A setup for sub-millimeter resolution <i>P. Vogel, A. Vilter, M. Rückert, P. Klauer, V. C. Behr</i>
14:45	Y. Song	An NMR spectrometer based on a silicon chip <i>Y. Song, J. Paulsen, S. Hong, Y. R. Tang, D. Ha, D. Ham, N. Sun</i>
15:00-17:00	Coffee and Poster Session (even-numbered)	
		Session: MR in Porous Media I Chair: B. Balcom
17:00	M.D. Hürlimann	NMR outside the magnet – Quantitative evaluation of porous media and NMR well logging
17:30	C. Arns	Pore scale analysis of NMR diffusion-relaxation responses of sandstones saturated by complex fluids <i>C. Arns, I. Shikhov, M. N. d'Eurydice, N. I. Sayedakram</i>
17:45	M. N. Shukla	Measurement of 3D velocity and transport of nanoparticle in rock core by high-resolution magnetic resonance imaging <i>M. N. Shukla, A. Vallatos, W. M. Holmes, V. R. Phoenix</i>

18:00	H. Liu	Two-dimensional NMR eigenmode correlation spectroscopy <i>H. Liu, M. d'Eurydice, S. Obruchkov, P. Galvosas</i>
18:15	Y. Gao	The generalized Phillips-Twomey method for NMR relaxation time inverse <i>Y. Gao, L. Xiao, Y. Zhang, Q. Xie</i>

Tuesday, August 4th

Session: MR in Porous Media II

Chair: M.D. Hürlimann

09:00	P. Galvosas	Recent advances in NMR diffusometry for porous media research
09:30	L. Xiao	Examining porous media by correlating internal gradients and pore size distribution <i>L. Xiao, Y. Zhang</i>
09:45	J. L. Paulsen	Self-calibrating low-field NMR measurements of pore size <i>J. L. Paulsen, Z.-X. Luo, M. Vembusubramanian, Y.-Q. Song</i>
10:00	A. Vallatos	Accurate phase-shift velocimetry in rock at 7T <i>A. Vallatos, M. N. Shukla, V. R. Phoenix, W. M. Holmes</i>
10:15	L. Pel	Can supersaturation for NaCl crystallization be maintained in a capillary? Combined microscopy and NMR of NaCl crystallization in a capillary <i>L. Pel, P. Donkers</i>
10:30	Coffee break	

Session: Hyperpolarization and Biomedical I

Chairs: J. Pope, A. Haase

11:00 **C. Malloy** Interpreting hyperpolarized ¹³C: even simple signals are challenging

11:30 **J.H. Ardenkjaer-Larsen** Hyperpolarization by dissolution-DNP for in vivo applications

12:00 **S. Düwel** A new ¹³C-labeled biosensor for hyperpolarized magnetic resonance spectroscopic imaging of pH in vivo

S. Düwel, C. Hundhammer, M. Gersch, B. Feurecker, A. Haase, S. Glaser, M. Schwaiger, F. Schilling

12:15 **K. Göbel** Cellular-level alterations in epileptogenesis - MR microscopy of organotypic hippocampal slice cultures

K. Göbel, J. Gerlach, R. Kamberger, J. Leupold, D. von Elverfeldt, J. G. Korvink, G. Haas, J. Hennig, P. LeVan

12:30 **J. Pope** Effects of type 1 diabetes on the shape, dimensions and refractive index distribution in the eye lens, studied by MRI at 3T

J. Pope, A. Adnan, D. Atchison

12:45-15:00 Lunch and Poster Session (odd-numbered)

Session: Hyperpolarization and Biomedical II

Chair: J.H. Ardenkjaer-Larsen

15:00 **J. Hövener** Hyperpolarization using paraHydrogen

15:30 **A. M. Olaru** Optimising SABRE by pH manipulation

A. M. Olaru, M. J. Burns, R. E. Mewis, T. W. Price, G. G. R. Green, S. B. Duckett

15:45	W. Warren	Making hyperpolarization versatile, practical and general for NMR and MRI <i>W. Warren, T. Theis, A. Logan, K. Claytor, Z. Zhou</i>
16:00	D. O. Kuethe	Video-mode 3D imaging of rat lungs for critical-care medicine research <i>D. O. Kuethe, L. E. Fedenburgh, R. San José Estépar, G. R. Washko, R. M. Baron, P. T. Filipczak, J. M. Hix</i>
16:15	N. Wang	Dependence of a load-induced laminar appearance in articular cartilage on MRI echo time <i>N. Wang, Y. Xia</i>
16:30	Coffee break	
Session: Young Investigator Award Competition		
Chair: M. Johns		
17:00	P. Klauer	Integrated TWMPPI-MRI scanner – NMR results <i>P. Klauer, E. Rommel, P. Vogel, M. Rückert, V. C. Behr</i>
17:20	D. Xiao	π echo-planar imaging with concomitant field compensation and efficient k-space sampling for porous media MRI <i>D. Xiao, B. Balcom</i>
17:40	H. Fabich	Using MRI to investigate fluidized bed reactors H. Fabich, A. Sederman, D. Holland
18:00	S. Kuczera	Fast RARE velocimetry in cylindrical couette geometry <i>S. Kuczera, T. I. Brox, P. Galvosas</i>
18:20	C. Smith	Study of the molecular interactions of ionic liquid colloidal suspensions using rheometry and NMR <i>C. Smith, M. Briton</i>
18:40	F. Schilling	The urea transporter – an MRI gene reporter that can be detected using transmembrane water exchange imaging <i>F. Schilling, D.-E. Hu, S. McGuire, K. Brindle</i>

Wednesday, August 5th

Session: Mobile and Low-field MRI I

“The Colloquium of mobile MR”

Chair: B. Blümich

09:00 **U. Nevo** Biomedical applications with a unilateral NMR scanner

09:30 **A. Haber** Emulsion stability probed by low field NMR
A. Haber, N. Ling, M. Akhfish, Z. Aman, E. Fridjonsson, E. F. May, M. L. Johns

09:45 **E. Rössler** Low-field NMR profiling and relaxometry of articular cartilage subject to loading and enzymatic degradation
E. Rössler, C. Mattea, F. Bajd, S. Stapf

10:00 **C. Kirkland** In-situ detection of subsurface biofilm using low-field NMR – A field study
C. Kirkland, M. P. Herrling, R. Hiebert, A. T. Bender, E. Grunewald, D. O. Walsh, S. L. Codd

10:15 **S. Altobelli** Detecting a layer of oil under a meter of ice
A. Altobelli, E. Fukushima, L. Chavez, H. Thomann, D. Panlandro, T. Nedwed

10:30 Coffee break

Session: MR in Engineering

Chair: M. Britton

11:00 **A. Jerschow** MRI of batteries

11:30 **J. Bray** MRI of electroplating in ionic liquids
J. Bray, A. Davenport, K. Ryder, M. Britton

11:45 **M. Mantle** Predicting drug release from solid pharmaceutical dosage forms using quantitative multi-nuclear(^1H – ^{19}F) magnetic resonance micro imaging

M. Mantle, S. Steffensen, C. Chen, H. Nielsen, L. Gladden

12:00 **E. Wilczynski** Unique nature of ion induced phase transition in gels revealed using NMR

E. Wilczynski, M. Mussel, U. Eliav, J. Gottesman, M. Wilk, U. Nevo

12:15 **M. McCarthy** In-line characterization of fluid mixing

M. McCarthy, K. McCarthy

12:30 Excursions

18:00-
23:00 Conference Reception and Dinner

Thursday, August 6th

Session: Flow and Diffusion MR I

Chair: A. T. Van

09:00 **D. Topgaard** Diffusion MRI methods inspired by solid-state NMR

09:30 **F. B. Laun** Symmetry of the gradient profile as second experimental dimension in the short-time expansion of the apparent diffusion coefficient as measured with NMR diffusometry

F. B. Laun, T. A. Kuder, F. Zong, S. Hertel, P. Galvosas

09:45 **A. Ianus** Metrics of microscopic anisotropy: a comparison study

A. Ianus, I. Drobnjak, N. Shemesh, D. C. Alexander

10:00	Y. Seo	Visualization of water flow in mantle cavity of bivalve by 7T MRI <i>Y. Seo, E. Seo, M. Murakami, K. Ohishi, T. Maruyama</i>
10:15	F. Zong	Diffusion-diffusion correlation spectroscopy in macroscopic anisotropic systems <i>F. Zong, P. Galvosas</i>
10:30	Coffee break	
11:00-12:00	General Meeting of the Ampere Division	
Session: Mobile and Low-field MR II “The Colloquium of mobile MR” Chair: V. Behr		
12:00	M. Johns	Process engineering applications of mobile magnetic resonance measurements
12:30	F. Deng	Determination of water & oil contents of oil sludge by online two-dimensional MR <i>F. Deng, L. Xiao, W. Chen</i>
12:45	C. Windt	Mobile NMR for the plant science: engineering for sensor-like, outdoor use <i>C. Windt, M. Meixner, J. Kochs</i>
13:00	A. McDowell	Highly space-efficient active shim designs for small, high-resolution permanent magnets <i>A. McDowell</i>
13:15	Y. Gao	NMR logging inversion methods and influence factor analysis in shale reservoirs <i>Y. Gao, L. Xiao, B. Wu</i>
13:30	Lunch	

Session: Flow and Diffusion MR II / Exotic and Emerging MR II

Chair: G. Guthausen

14:30	Y. Song	MRI visualization of non-uniformities in a flowing slurry <i>Y. Song, S. Oh, B. Lecampion, J. Desroches, D. I. Garagash, A. Robisson</i>
14:45	T. A. Kuder	Effects of pore size and shape distributions on diffusion pore imaging by NMR <i>T. A. Kuder, F. B. Laun</i>
15:00	C. Yolcu	NMR diffusion signal for molecules subject to potentials <i>C. Yolcu, M. Memic, K. Simsek, E. Ozarslan</i>
15:15	P. Faure	MRI measurements of colloid transport and adsorption in porous medium <i>P. Faure, A. P. Lehoux, D. Courtier-Murias, S. Rodts, E. Michel, P. Coussot</i>
15:30	P. Vogel	Nuclear magnetic signal generation with variable field amplitudes <i>P. Vogel, T. Kampf, M. Rückert, A. Vilter, P. Jakob, V. C. Behr</i>
15:45	M. A. Rückert	Rotating drift spectroscopy: generating signal echo trains in magnetic nanoparticle ensembles <i>M. A. Rückert, A. Vilter, P. Vogel, T. Kampf, V. C. Behr</i>
16:00	M. C. Wapler	Concurrent optical and MR microscopy <i>M. C. Wapler, F. Testud, N. Spengler, M. Zaitsev, U. Wallrabe</i>
16:15	Closing	
16:30	Excursion to the magnetically shielded room at the Garching Campus Area (Tickets necessary)	

DIVISION OF SPATIALLY RESOLVED MAGNETIC RESONANCE OF THE AMPERE SOCIETY

The Division was founded in 1995 during the 3rd meeting of Magnetic Resonance Microscopy. The purpose of the Division is to advance the subject of Spatially Resolved Magnetic Resonance by means of International Conferences organized biannually across the world. The governing organization of the Division consists of the Executive Committee, the Division Committee and the General Membership composed of conference attendees who are automatically members of the AMPERE Society.

Executive Committee

The Executive Committee is responsible for the management, administration and finances of the SRMR Division. It has the following members:

Chair:	M. Johns (AUS)
Vice Chair:	I. Koptug (R)
Treasurer:	M. Britton (UK)
Secretary General:	S. Codd (USA)
Vice Secretary General:	V. Behr (G)
Past Conference Chairs:	L. Gladden (UK), A. Sederman (UK)
Conference Chair:	A. Haase (G)
Past Chair:	B. Balcom (CAN)
Advisors:	E. Fukushima (USA), B. Blümich (G), L. Xiao (CH)

Division Committee

The Division Committee is responsible for carrying out the business of the Division, including the scientific organization of the conference. The members are:

Katsumi Kose, Bertram Manz, Mark Hunter, Andrew Coy, Martin Hurlimann, Daniel Holland, Yoshiteru Seo, Michael McCarthy, Siegfried Stapf, Stephan Appelt, Benedict Newling, Yi-Qiao Song, Peter Basser, Dimitrios Sakellariou, Ranhong Xie, Louis Bouchard, Andy Sederman, P Yang, Melanie Britton, Igor Sersa, Jürgen Hennig, Federico Casanova, Jennifer Brown, Luisa Ciobanu, Shinya Handa, Paul Glover.

Scientific Committee

All members of the Executive Committee and the Division Committee are members of the Scientific Committee. They are asked by the Conference Chair to propose scientific topics and invited speakers for the ICMRM conferences. The Scientific Committee reviews the submitted abstracts and proposes poster and oral contributions. In addition, this committee decides about the Young Investigator Award Finalists and a subcommittee will rank the YIA presentations for the selection of the “Sir Paul Callaghan Young Investigator Award”.

General Meeting

The General Meeting has the final authority of the Division. All conference attendees are automatically members of the General Meeting and are encouraged to attend. The general meeting will take place in the Auditorium on Thursday morning during the conference.

Organizing Committee

Axel Haase
Technische Universität München

Anh Tu Van
Technische Universität München

Staff

Stephanie Hopf	COCS GmbH Munich
Martina Wiederkrantz	COCS GmbH Munich
Bernhard Gleich	Technische Universität München
Katharina Scholz	Technische Universität München

... and many student helpers from TUM

Conference General Information

Venue

The conference will be held at the building of the Department of Computer Science of TUM at the Research Campus in Garching (see Map 1). All lectures will take place at the main Auditorium of this building, the industrial exhibition, poster presentations and all lunches and coffee breaks will be located on the foyer of the building, just outside of the Auditorium. The conference dinner will be held in the Parliament of the State of Bavaria, Munich – see details below.

Registration and help desk

The registration and help desk will be located outside of the main Auditorium of the Department of Computer Science of TUM. The registration and help desk will be open during the conference hours for the duration of the conference.

Internet access

WLAN is available for all attendees in the auditorium and the foyer of the building of the Department of Computer Science. You will have free access to the Internet via a wifi connection throughout the university premises. You can choose between:

- Accessing “eduroam”. If your institute is part of the eduroam project, you will have received a username and password from your institute (for more information see: www.eduroam.org). This is the preferred method as it is free of charge for the conference organizers.
- If your institute is not part of the eduroam project you can access “mwn-events”.

You will need the following data to access the network:

Username: icmrm2015
Password: CPvS.Lij

The method is available but will produce additional costs for the conference organizers.

Excursions

Two parallel excursions will take place on Wednesday afternoon. No lunch will be provided but lunch boxes (contains meat or vegetarian food) will be available for conference attendees. The following excursions are available (see conference web pages for more details). The prices can be found on the web pages. There are only a few tickets available on-site:

- Nymphenburg Palace (Nymphenburg Castle of Bavarian Kings)
- Deutsches Museum (Museum of Science and Industry)

In addition there will be an excursion after the end of the conference on Thursday afternoon to visit the laboratory of the “lowest magnetic field of the solar system”. For this excursion it is necessary to have an official ID available (passport). Tickets are available on-site or on-line before the conference.

Conference Dinner

The conference dinner will be held on Wednesday, August 5th, starting at 6:00 p.m. The conference dinner will be held in the Senate Room of the Parliament of the State of Bavaria (Bayerischer Landtag). All registered participants who have paid the registration fee will receive a ticket for the conference dinner. All further participants and accompanying persons who would like to attend MUST register for the dinner at the conference registration desk. You MUST bring a photo ID (Passport) to the event. Without registration AND photo ID there will be no access to the parliament building.due to security reasons. There will be a bus transportation from Garching City Center to the conference dinner location and back. See more details during the conference at the registration desk.

Guidelines for oral and poster presentation

Oral presentations

For opening and dinner lecture there exists a 45 minutes time slot.

For invited presentations there exists a time slot of 30 minutes: plan 25 minutes for your presentation and 5 minutes for discussions.

For YIA presentations there exists a time slot of 20 minutes: plan 15 minutes for your presentation and 5 minutes for discussions

For oral presentations there exists a time slot of 15 minutes: plan 10 minutes for your talk and 5 minutes for discussions,

Please submit your presentation files to the speaker preview registration desk 24 hours before your talk. The registration desk is located directly in front of the main auditorium. If you would like to submit your presentation via email, please send the file to Katharina Lang at TUM: katharina.lang@tum.de

The conference organization supports different presentation formats (Powerpoint, Keynote, PDF). We will test your presentation (videos etc.) before the start of your lecture.

Poster presentations:

Posters can be displayed during the entire conference, starting from Sunday lunchtime at 12:00 until Thursday at 17:00 afternoon. Poster boards are available for posters having:

82 cm width – 120 cm high

Tape or sticks will be provided to attach your posters to the board (please contact the registration desk).

Poster session on Monday afternoon:

All authors of posters with EVEN NUMBERED POSTERS must be present

Poster session on Tuesday afternoon:

All authors of posters with ODD NUMBERED POSTERS must be present

Competitions

Young Investigator Award Competition (YIA)

Six authors have been selected by the reviewers to present their work as an oral contribution during the YIA session on Tuesday afternoon. All presentations have a time slot of 20 minutes which is strictly limited. It is essential that 5 minutes of this time slot are allocated for discussions and questions. The presentations will be reviewed by a review committee. According to the ranking of the committee, the YIA winner will be selected.

Image beauty competition

As in previous years, we will be having an Image Beauty Competition. Please bring along your entries, which can be submitted as print-outs or electronically at the conference registration desk.

Anything goes: artistic, beautiful, artefact, perfect or ugly. Feel free to submit multiple entries.

The winners will be announced during the conference dinner and will receive a prize.

More details and a list of previous winners can be found at:

https://files.oakland.edu/users/xia/web/ICMRM_BeautyContest/ICMRM_BeautyContest.html

Deadline for the Image Beauty Competition is: **Tuesday, August 4th, 6:00 p.m.**

Sponsors

We gratefully acknowledge the contributions of the following sponsors to the ICMRM 2015:

Bruker BioSpin, Rheinstetten, Germany



GE Global Research Center Europe,
Garching/ Munich, Germany



Deutsche Forschungsgemeinschaft (DFG)
Grant:



SFB 824:
Sonderforschungsbereich 824: Bildgebung zur Selektion,
Überwachung und Individualisierung der Krebstherapie



Exhibitors

The following companies will present their products during the industrial exhibition:

Bruker BioSpin, Rheinstetten, Germany



Magritek GmbH, Aachen, Germany



MR Solutions Ltd., Guildford, Surrey, UK



Pure Devices GmbH, Wuerzburg, Germany



RAPID Biomedical GmbH, Rimpar, Germany



Instructions for Exhibitors

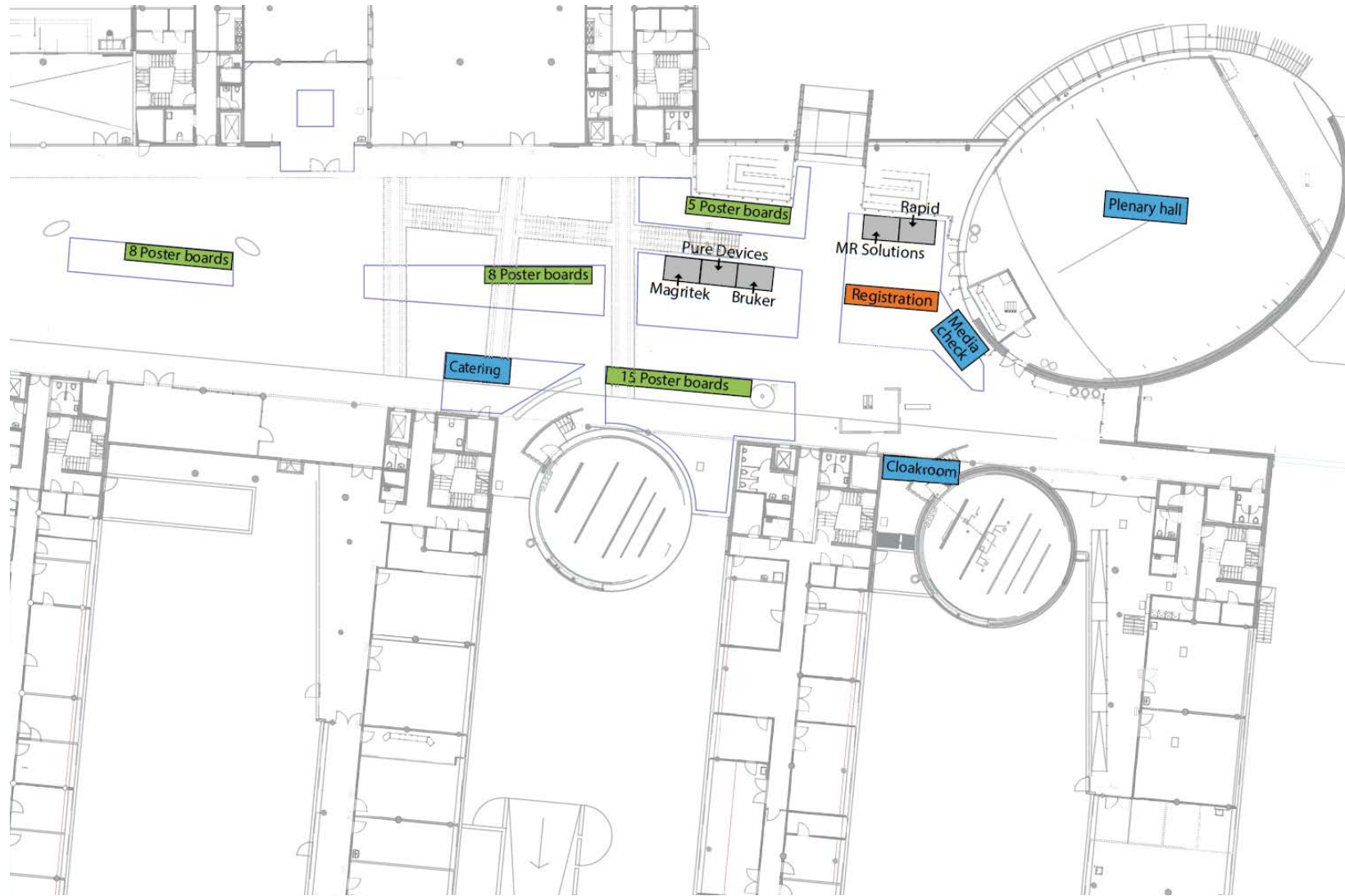
Exhibition space is available at the foyer of the Building of Computer Science of TUM. The space is located directly in front of the main auditorium and next to the poster area. Setup time begins on Sunday, August 2nd, at 12:00 and the space must be cleared by 17:00 on Thursday, August 6th. Please contact the registration desk for additional information.

Drinks and Food

Drinks, snacks, and food during lunch will be available for all conference attendees for free at the foyer during the time intervals given in the program (coffee breaks and lunch). Additional drinks and snacks can be purchased on-site.

Dinner will not be available on-site. There are many restaurants near the campus and in the city of Munich (accessible via underground train U6). The conference dinner for attendees having tickets is free of charge (see additional information).

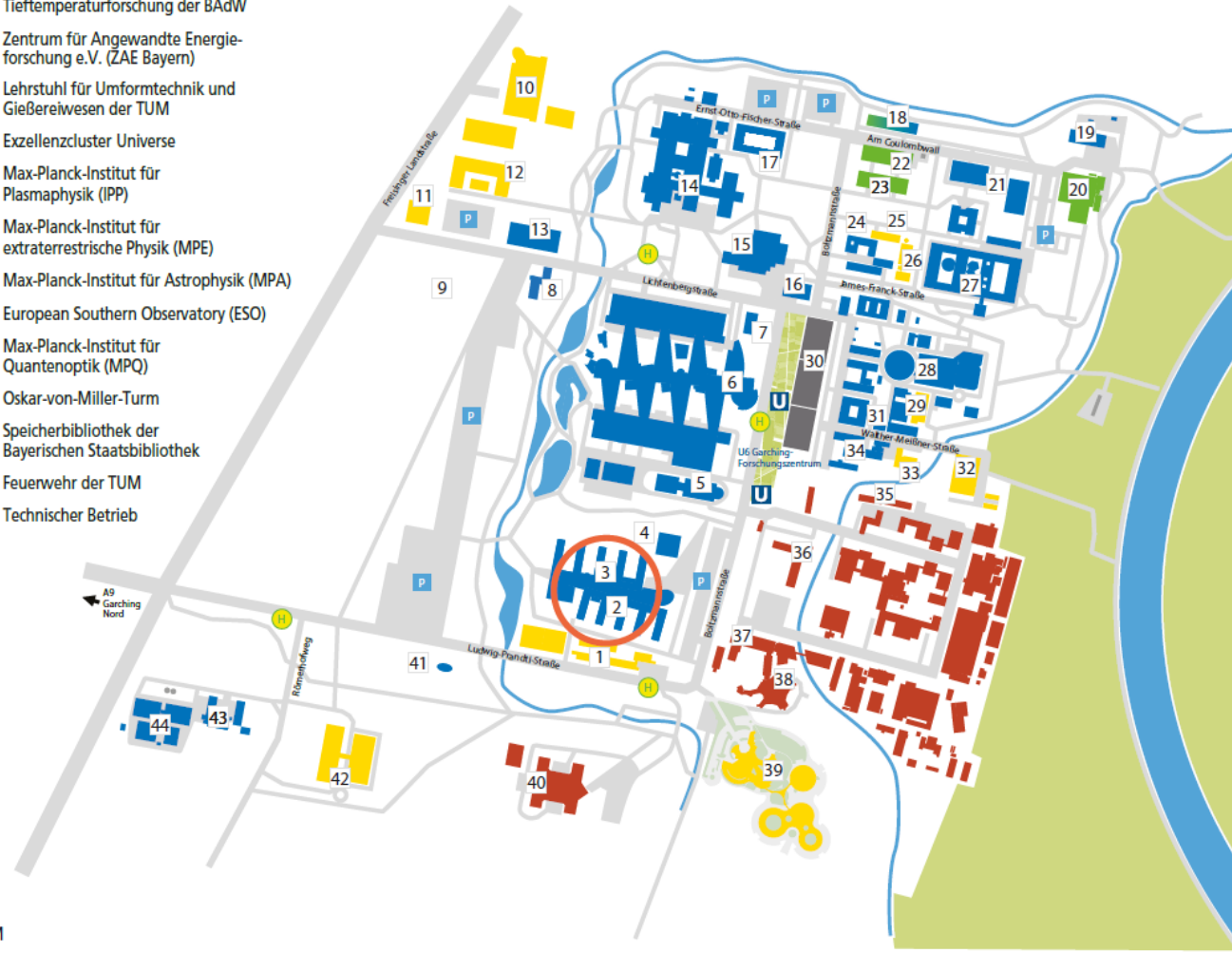
MAP OF CONFERENCE LOCATION



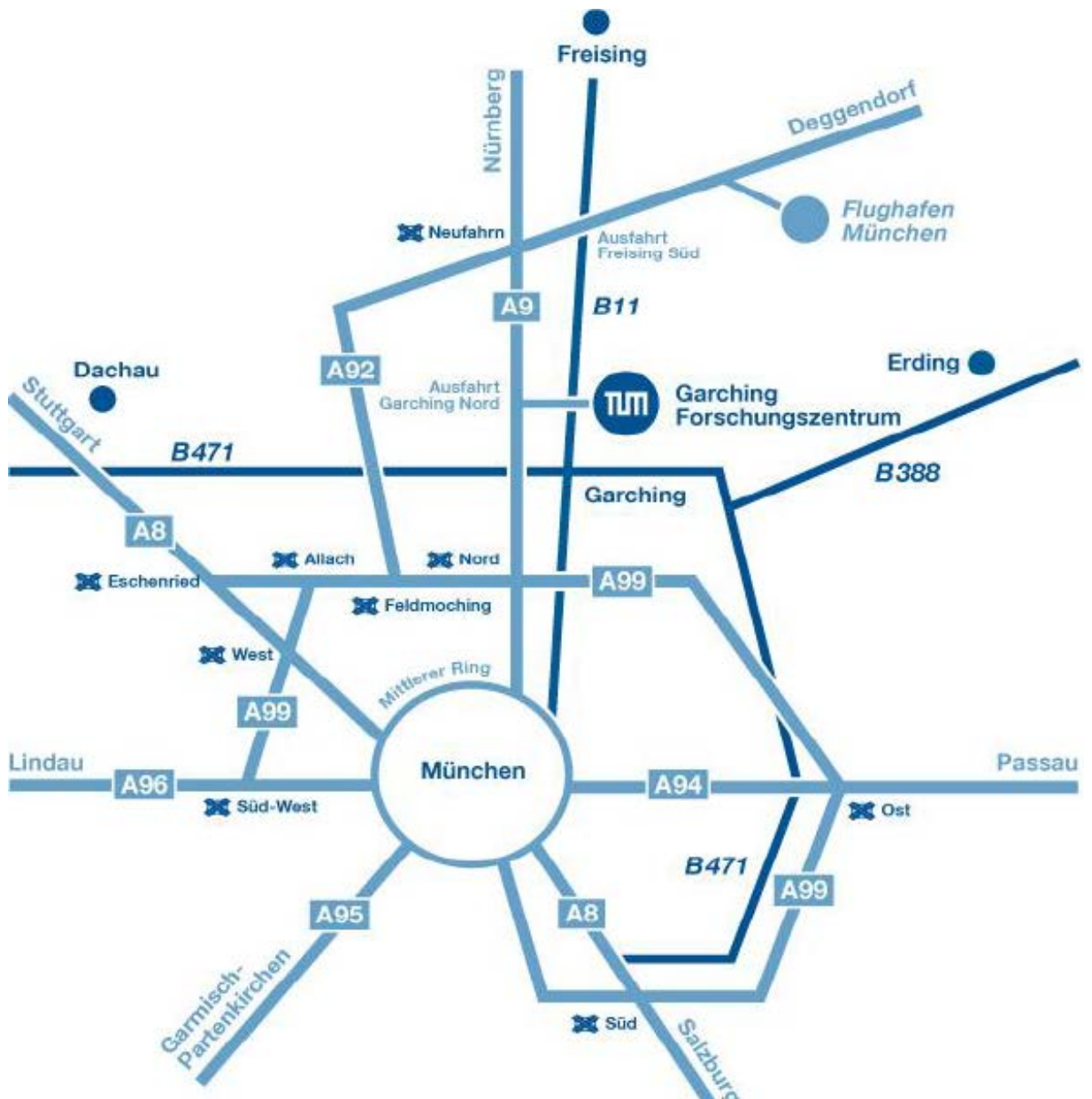
Forschungscampus Garching – Research Campus Garching

- 1 Leibniz-Rechenzentrum der BAfW
- 2 Fakultät für Mathematik der TUM
- 3 Fakultät für Informatik der TUM
- 4 Interimshörsaal
- 5 Zentralinstitut für Medizintechnik der TUM (IMETUM)
- 6 Fakultät für Maschinenwesen der TUM
- 7 Exzellenzzentrum der TUM
- 8 Ingeborg Ortner-Kinderhaus
- 9 Fraunhofer-Institut (in Planung)
- 10 General Electric Global Research Center Europe
- 11 Metall-Innung
- 12 Garchinger Technologie- und Gründerzentrum (gate)
- 13 Entrepreneurship-Zentrum
- 14 Fakultät für Chemie der TUM
- 15 Mensa des Studentenwerks München + C: Campus Cneipe
- 16 Institute for Advanced Study der TUM
- 17 Zentralinstitut für Katalysatorforschung der TUM
- 18 Center for Advanced Laser Applications (TUM und LMU)
- 19 Lehrstuhl für Siedlungswasserwirtschaft der TUM
- 20 Maier-Leibnitz-Laboratorium (TUM und LMU)
- 21 Walter Schottky Institut der TUM
- 22 Physik der LMU München
- 23 Exzellenzcluster MAP
- 24 Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) mbH
- 25 TÜV Rheinland ISTec GmbH
- 26 T-Systems Solutions for Research GmbH
- 27 Physik-Department der TUM
- 28 FRM II: Forschungs-Neutronenquelle der TUM und Heinz Maier-Leibnitz Zentrum (MLZ)

- 29 Isotope Technologies Garching GmbH (ITG)
- 30 GALILEO (im Bau)
- 31 Radiochemie München (RCM)
- 32 Walter-Meißner-Institut für Tieftemperaturforschung der BAfW
- 33 Zentrum für Angewandte Energieforschung e.V. (ZAE Bayern)
- 34 Lehrstuhl für Umformtechnik und Gießereiwesen der TUM
- 35 Exzellenzcluster Universe
- 36 Max-Planck-Institut für Plasmaphysik (IPP)
- 37 Max-Planck-Institut für extraterrestrische Physik (MPE)
- 38 Max-Planck-Institut für Astrophysik (MPA)
- 39 European Southern Observatory (ESO)
- 40 Max-Planck-Institut für Quantenoptik (MPQ)
- 41 Oskar-von-Miller-Turm
- 42 Speicherbibliothek der Bayerischen Staatsbibliothek
- 43 Feuerwehr der TUM
- 44 Technischer Betrieb



MAP OF MUNICH AREA



LOCAL TRANSPORTATION

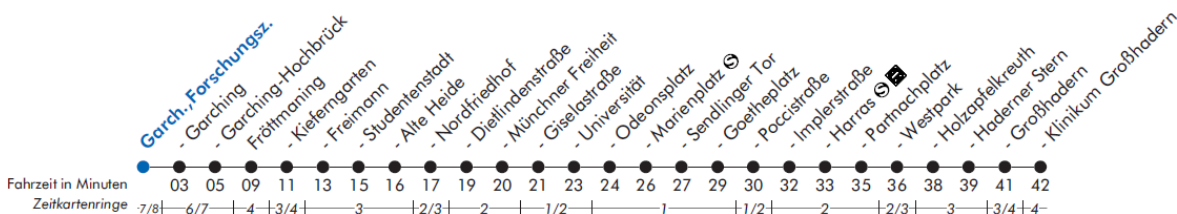
Gültig ab 20. Dezember 2014

U6

Garching, Forschungszentrum - Fröttmaning - Marienplatz ☉ -
Harras ☉ - Holzapfelkreuth - Klinikum Großhadern



Garch.,Forschungsz.



Uhr	Montag - Donnerstag	Freitag	Samstag	Sonn- und Feiertag	Uhr
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6	16 26 36 46 56	16 26 36 46 56	13 33 53	13 33 53	6
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9	06 16 26 36 46 56	06 16 26 36 46 56	16 36 56	13 33 53	9
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18	06 16 26 36 46 56	06 16 26 36 46 56	16 36 56	13 33 53	18
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20	13 33 53	13 33 53	13 33 53	13 33 53	20
21	13 33 53	13 33 53	13 33 53	13 33 53	21
22	13 33 53	13 33 53	13 33 53	13 33 53	22
23	13 33 53	13 33 53	13 33 53	13 33 53	23
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2	16 [■] _{V29}	16 [■] _{V29}	16 [■] _{V29}	16 [■] _{V29}	2
3	06 ^x _{V97} 16 [■] _{V29}	06 ^x 16 [■] _{V29}	06 ^x _{V11} 16 [■] _{V29}	06 ^x _{V97} 16 [■] _{V29}	3

x = bis Kieferngarten

■ = bis Münchner Freiheit

V11 = Nicht in der Nacht vom 31.12.2014/1.1.2015 (siehe Sonderfahrplan)

V29 = nur Faschingsendspurt (13. - 16.02.2015)

V93 = nicht Nächte vor Feiertagen, nicht 15./16. und 16./17.02.2015

V97 = Nächte vor Feiertagen, auch 15./16. und 16./17.02.2015

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