

Summary

The EUROMAR 2007 conference and satellite meetings took place in Tarragona (Spain) from 1 to 6 of July 2007. The conference was partially supported by the ESF Research Networking Programme EMAR ("Multidisciplinary Frontiers of Magnetic Resonance"). Funding had been approved by the Programme Steering Committee on its launch meeting in Starsbourg. The total assigned budget was 51.000 euros.

The meeting was a scientific success and the contribution of the ESF RNP was used to help the participation of 91 students and postdoc and to partially contribute to the expenses of speakers.

With the help of the EMAR programme, the EUROMAR attendance rose by more than 50% with respect to the previous edition and gathered participants from 26 different European countries. It also consolidated the role of European Magnetic resonance worldwide with a 18% participation of non-Europeans, coming from 17 countries of America, Australasia and Africa.

EMAR received a large publicity and several non-participating countries have shown their interest in joining the network.

Description of the scientific content of the event

The EUROMAR 2007 conference took place in Tarragona (Spain) from 1st to 5th of July. The conference was followed by three satellite meetings that took place on July 6th.

The RNP "Multidisciplinary Frontiers of Magnetic Resonance" (EMAR) shares the same goals that inspired this series of conferences:

- a) Exploring new frontiers.
- b) Bringing together the different specialties within the broad field of magnetic resonance.
- c) Integrating groups from different countries and facilitating new collaborations.
- d) Training of young researchers.

Scientific Program

The program of EUROMAR 2007 was inspired in the concepts of exploring new frontiers and bringing together different specialties.

Keynote lectures were delivered by well known scientists from different areas of the field and included Liquid state NMR, EPR, Pharmaceutical applications, Dynamic Nuclear Polarization, Biological NMR, Solid State NMR of biological and material systems, Metabonomics and new methods. Among the keynote speakers were a Nobel laureate (Prof. K. Wüthrich) and a leading person in the pharmaceutical industry (Dr. S. Fesik) and geographically included speakers from Europe, USA and New Zeland.

Parallel sessions were arranged thematically as follows:

Biomolecules
Materials
Dynamics
EPR
Paramagnetic Systems
Supramolecular systems/Small molecules
Hyperpolarization
Pharmaceutical Applications
Spin Physics
Solids
Relaxation
Imaging
Optimized NMR

Frontiers

In each of the sessions a broad definition of the subject was used so that specialists in different areas may be exposed to input from neighbor but often unconnected fields.

For example, the dynamic session did not concentrate just on internal dynamics of proteins but included electrophoresis NMR in which the global motion of the molecules under an electric field is studied. Likewise in the small molecules session there were talks in which small molecules were used to characterize materials, the use of special instrumentation for measuring NMR in a chip or paramagnetic supramolecular assemblies that could be used as contrast agents for imaging.

The pharmaceutical applications session, typically restricted to liquids, included the use of solid-state NMR.

The spin physics session included new concepts and observations related to imaging or effects observed in hyperpolarized fluids, which was the subject of a different session.

The imaging session included applications in humans and materials, one-side magnets and microcoils.

The optimized NMR session included a view of the different approaches to improve NMR detection and included lectures from one of the pioneers of NMR that after a lifetime has become a reference figure in this expanding field and two young Ph.D. students from other leading laboratories in the field, bringing together the tradition and the innovation.

The frontiers session included talks about very new areas like optical detection of NMR or widely unknown areas like beta-NMR. It also discussed the connections between NMR and EPR on the light of the improved pulsed EPR spectrometers.

The connection between EPR and NMR was further stressed in a specific EPR session and a, mainly EPR, paramagnetic systems session. In this session, however, the use of paramagnetic metals and chemical exchange –connecting with the dynamic session- was also discussed.

Over 400 posters were presented continuously during the conference and extensive time was allocated to individual discussions. Poster tours, led by senior scientists took students and young post-docs through several posters stimulating discussion with the authors.

Satellite meetings

Three satellite meetings took place just after the conference and in the same venue. These satellite meetings could be considered a natural extension of the main meeting and constituted an innovation in the series.

They were very well attended with 64 participants in the COST meeting "Electron-Nuclear Spin Interactions", 85 participants in the EU-NMR meeting "New NMR pulse sequences for proteins, nucleic acids and protonless NMR" and 121 in the 2nd Iberoamerican NMR meeting.

These satellites increased the chances of active participation by 29 speakers and had, specially for the first two, a tutorial objective.

The Iberoamerican NMR meeting attracted additional participants to the main meeting from the Americas, Spain and Portugal.

These meetings also played the role of integrating with other networking organizations in neighbour fields under different financial schemes and rules that, together help to articulate the European Magnetic Resonance Community.

Assessment of the results and impact of the meeting

Statistics of attendance

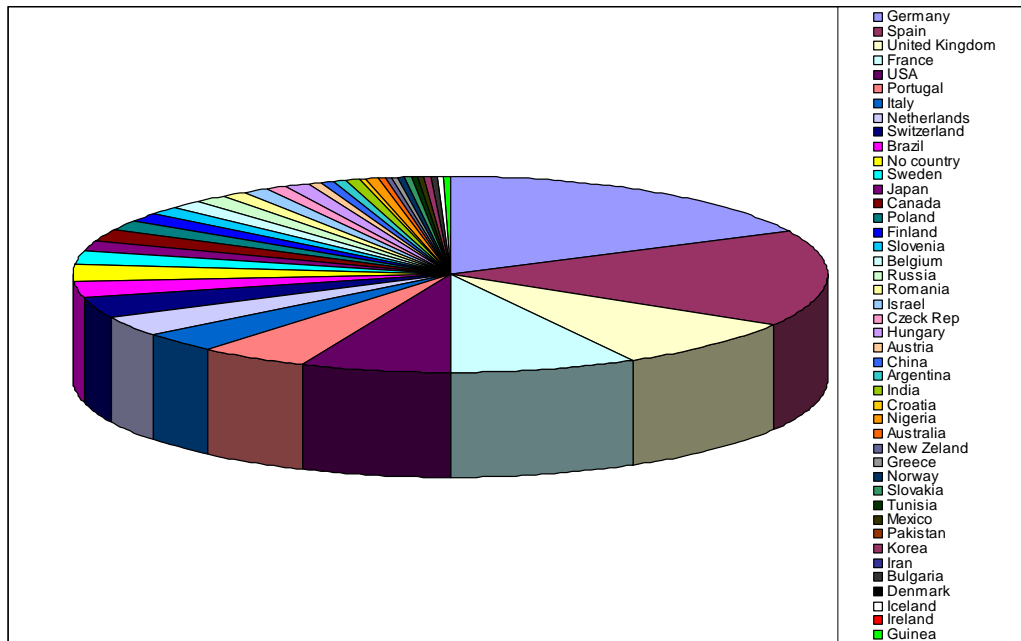
The total number of participants was 673 divided in

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|-----|-------------------------------|
| 3 | Prize winner speakers |
| 11 | plenary speakers |
| 64 | speakers in parallel sessions |
| 370 | regular participants |
| 181 | students |
| 44 | exhibitors |

The participants came from 43 different countries with the following distribution per areas:

| | |
|-----|-------------|
| 537 | Europe |
| 78 | Americas |
| 27 | Australasia |
| 13 | Africa |

The distribution per countries is shown in the following graph.



The participation was substantially larger than in previous EUROMAR meetings (438 in York 2006 and 500 in Veldhoven 2005). The increase in participation shows that the EUROMAR conferences are consolidating as the reference NMR conference in EUROPE. 18% of the participants were not European, showing that the European meeting is attracting a wide expectation worldwide

An increase in the attendance to EUROMAR meetings is one of the keystones for the EMAR programme and in 2007 we have clearly advanced in the right direction.

The European participants (82%) came from 26 different countries. The ESF Network programme EMAR was publicized in a brochure distributed to all the participants and explained in the closing plenary session. A meeting with the representatives of national societies of magnetic resonance and the steering committee members present was held during the conference and we have already received indications that organizations from countries not yet represented in the programme would like to join.

Extending the network to other European countries is one of the milestones of the EMAR programme.

The participation of students and postdocs is essential for the training objectives of the EMAR programme. The EMAR programme has provided stipends covering part of the cost of attendance of 91 students and young post docs.

In summary: With the help of the ESF the 2007 EUROMAR meeting has reached its most ambitious objectives:

It has increased the participation by more than 50% from the previous addition.

It has shown to be a meeting place for the different European efforts to articulate the magnetic resonance community, including other networking efforts and the EU funded large scale facilities.

It has brought together participants from 43 different countries (including 26 from Europe) clearly enlarging the base of the EMAR network

It has presented a scientific program of first quality that has been rated as comparable or superior to the most renowned magnetic conferences in the world. Conversations to hold a future joint meeting with the ISMAR conference that has a broad basis in America and Asia have been established.

PROGRAMME OF THE EUROMAR 2007 MEETING

1-5 July 2007, Tarragona, Spain

Sunday July 1st Morning

10:00 - Registration and mounting of Posters

Sunday July 1st Afternoon

14:00 - 18:00 VARIAN Users meeting
BRUKER Users meeting

18:00 - 20:00 **Opening session**
AMPERE Prize: Bernhard Blümich
Raymond Andrew Prize: Christian Degen
Russell Varian Prize: Alfred Redfield

20:30 - **Welcome cocktail at Tarragona Roman Walls**

Monday July 2nd Morning

08:30 - 10:00 **Plenary, Chair: Alfred Redfield**

08:30 - 09:15 Malcolm Levitt
09:15 - 10:00 Wayne L. Hubbell

10:00 - 11:00 **Coffee Break**

| | | | |
|---------------|-----------------|------------------------|-----------------------|
| 11:00 - 12:55 | Parallel | BIOMOLECULES I | MATERIALS |
| | Chair: | Astrid Gräslund | Olga B. Lapina |
| 11:00 - 11:40 | | Volker Dötsch | Roderick E. |
| Wasylishen | | | |
| 11:40 - 12:05 | | Rolf Boelens | Igor Koptug |
| 12:05 - 12:30 | | Carlos Conzalez | Janez Dolinsek |
| 12:30 - 12:55 | | Masatsune Kainosho | Yaroslav Khimyak |

13:00 - 14:00 **Lunch**

Monday July 2nd Afternoon

14:00 - 16:00 **Posters**

| | | | |
|---------------|-----------------|-----------------------------|------------------------|
| 16:00 - 17:55 | Parallel | DYNAMICS | SYSTEMS |
| | | PARAMAGNETIC | |
| | Chair: | Christian Roumestand | Pablo J. Alonso |
| 16:00 - 16:40 | | Christian Griesinger | Dante Gatteschi |
| 16:40 - 17:05 | | Martin Blackledge | Natalia |
| Domracheva | | | |
| 17:05 - 17:30 | | Ulrich Scheler | Sabine van |
| Dooslaer | | | |

17:30 - 17:55

Pedro Lamosa

Michael John

18:00 - 18:45 **Plenary, Chair: Teresa Blasco**

18:00 - 18:45 Philip Grandinetti

19:00 - **Hospitality Suites and Social Activities**

Tuesday July 3rd Morning

08:30 - 10:00 **Plenary, Chair: Gerhard Wagner**

08:30 - 09:15 Steve Fesik

09:15 - 10:00 Robert G. Griffin

10:00 - 11:00 **Coffee Break**

11:00 - 12:55 **Parallel** **SUPRAMOL. SYSTEMS/
HYPERPOLARIZATION**

SMALL MOLECULES

Chair: **Jesús Jimenez-Barbero** **Robert G. Griffin**

11:00 - 11:40 Burkhard Luy Sean E. Barrett

11:40 - 12:05 Andre E. Merbach Elke Brunner

12:05 - 12:30 Victoria Gomez Lars Kuhn

12:30 - 12:55 Jose Martins Patrick Berthault

13:00 - 14:00 **Lunch**

Tuesday July 3rd Afternoon

14:00 - 16:00 **Posters**

16:00 - 17:55 **Parallel** **PHARMACEUTICAL
APPLICATIONS** **SPIN PHYSICS**

Chair: **Nico A.J. van Nuland** **Janez Dolinsek**

16:00 - 16:40 Ernest Giralt Dieter Suter

16:40 - 17:05 Robert Konrat Steffen Glaser

17:05 - 17:30 Robin Harris Mladen Barbic

17:30 - 17:55 Ernst R.H. van Eck Denis Marion

(MRC Prize)

18:00 - 18:45 **Plenary, Chair: Andrew Byrd**

18:00 - 18:45 John C. Lindon

19:00 - **Hospitality Suites and Social Activities**

Wednesday July 4th Morning

08:30 - 10:00 **Plenary, Chair: Beat Meier**

08:30 - 09:15 Lewis Kay

09:15 - 10:00 Robert Tycko

10:00 - 11:00 **Coffee Break**

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|----------------------|-----------------|---------------------|---------------------|
| 11:00 - 12:55 | Parallel | SOLIDS I | RELAXATION |
| | Chair: | Teresa Nunes | Oscar Millet |
| 11:00 - 11:40 | | Beat Meier | Mikael Akke |
| 11:40 - 12:05 | | Ago Samoson | Neri Niccolai |
| 12:05 - 12:30 | | Juan Lopez-Valentin | Carol Post |
| 12:30 - 12:55 | | Steven P. Brown | Carine van |

Heijenoort

13:00 - 14:00 **Lunch**

Wednesday July 4th Afternoon

14:00 - 16:00 **Posters**

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|----------------------|-----------------|------------------------|-----------------------|
| 16:00 - 17:55 | Parallel | BIOMOLECULES II | SOLIDS II |
| | Chair: | Marta Bruix | Sonia Cabrales |
| 16:00 - 16:40 | | Harald Schwalbe | Bernd Reif |
| 16:40 - 17:05 | | Muriel Delepierre | Anja Bockman |
| 17:05 - 17:30 | | Mario Piccioli | Thorsten Maly |
| 17:30 - 17:55 | | Alexander Golovanov | Natalia Pérez |

18:00 - 18:45 **Plenary, Chair: Manuel Rico**
18:00 - 18:45 Kurt Wütrich

19:00 - **Hospitality Suites and Social Activities**

Thursday July 5th Morning

08:30 - 10:00 **Plenary, Chair: Lucio Frydman**
08:30 - 09:15 Arno P.M. Kentgens
09:15 - 10:00 Paul Gallagher

10:00 - 11:00 **Coffee Break**

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|----------------------|-----------------|-----------------------|------------------|
| 11:00 - 12:55 | Parallel | IMAGING | FRONTIERS |
| | Chair: | Bernardo Celda | Geoffrey |
| Bodenhausen | | | |
| 11:00 - 11:40 | | Rolf Grueter | Michael Romalis |
| 11:40 - 12:05 | | Federico Casanova | Graham Smith |
| 12:05 - 12:30 | | Luisa Ciobanu | Fridrikh |
| Dzheparov | | | |
| 12:30 - 12:55 | | Gil Navon | Peter Blümler |

13:00 - 14:00 **Lunch**

Thursday July 5th Afternoon

14:00 - 16:00 **Posters**

16:00 - 17:55
SESSION

Parallel

OPTIMIZED NMR

EPR COST

Chair:

Marc-André Delsuc

Thomas Prisner

16:00 - 16:40

Ray Freeman

Daniella Goldfarb

16:40 - 17:05

Martin Billeter

Gunnar Jeschke

17:05 - 17:30

Paul Schanda

Martina Huber

17:30 - 17:55

Maayan Gal (MRC Prize)

Bela Bode (MRC

Prize)

18:00 - 18:45

Closing

19:00 - 20.30

Hospitality Suites and Social Activities

21:00 -

Conference Dinner

SATELLITE MEETINGS

II Iberoamerican NMR meeting

Date: Friday, 6th July

Room: *Genius lounge, floor 1*

Programme:

08:30-08:45 REGISTRATION

08:45-09:00 OPENING AND WELCOME: **Miquel Pons**, President of the GERMN

09:00-09:40 PLENARY TALK: **Eurico Cabrita** (Universidade Nova de Lisboa, Portugal), "Green Chemistry meets NMR: Studying intermolecular interaction in non conventional media"

09:40-10:05 CONFERENCE: **José Daniel Figueroa-Villar** (Instituto Militar de Engenharia, Brasil), "NMR and molecular modelling in the study of intermolecular interactions in medicinal chemistry"

10:05-10:30 CONFERENCE: **Manuel Martín** (Universidad de Santiago de Compostela, Spain), "Fast-NMR: optimized homonuclear and heteronuclear methods for small molecules"

10:30-11:00 COFFE-BREAK

11:00-11:25 CONFERENCE: **Mario Engelsberg** (Universidade Federal de Pernambuco, Brasil), "High throughput, non-destructive determination of oil content in seeds by continuous wave-free precession NMR"

11:25-12:10 ORAL COMMUNICATIONS:

Jair C. C. Freitas (University of Warwick, Coventry, United Kingdom), "Signal enhancement techniques applied to natural abundance ^{25}Mg NMR investigation of organometallic compounds"

Gustavo A. Monti (Universidad Nacional de Córdoba, Argentina), "Cross-link point functionality influence on elastic properties of model pdms networks"

- M. Margarida Castro** (University of Coimbra, Portugal), "Vanadium compounds as insulin mimetic agents: chemical and biochemical studies of a pyrimidinone complex"
- 12:10-12:35* CONFERENCE: **Luis Mafra** (Universidade de Aveiro, Portugal), "High-Resolution ¹H solid-state NMR studies of inorganic-organic hybrid materials"
- 12:35-13:00* CONFERENCE: **Teresa Blasco** (Instituto de Tecnología Química, UPV-CSIC, Spain), "In situ solid state NMR to investigate reaction mechanisms using porous solids as catalysts"
- 13:00-15:00* LUNCH
- 15:00-15:40* PLENARY TALK: **Fábio Almeida** (Universidade Federal do Rio de Janeiro, Brasil), "Ordered conformational states of flexible peptides in solution and the implication on the conformation acquired upon binding to their biological targets"
- 15:40-16:05* CONFERENCE: **Carlos Salgueiro** (Universidade Nova de Lisboa, Portugal), "NMR as a tool to structural and functionally characterize multicentre proteins"
- 16:05-16:50* ORAL COMMUNICATIONS:
- Cristina Daolio** (Max Plank Institute for chemical ecology, Germany), "Identification and characterization of *Alternaria* mycotoxins using HPLC-SPE-NMR"
- María Flor García-Mayoral** (National Institute for Medical Research, United Kingdom), "Solution structures of the c-terminal domains of KSRP and NMR-monitored RNA binding studies"
- Pedro M. Nieto** (Instituto de Investigaciones Químicas, CSIC, Spain), "The interaction between dc-sign lectin and mannose oligosaccharides studied by NMR"
- 16:50-17:30* PLENARY TALK: **Oscar Millet** (CIC bioGUNE, Spain), "Ion induced modulation of protein stability as studied by NMR spectroscopy"
- 17:30* CLOSING SESSION

Cost P15 WS “Electron- Nuclear Spin Interactions”

Date: Friday, 6th July

Room: *Minerva lounge, floor -1*

Programme:

9:00-9:45 Static S-I Spin Hamiltonian and Hyperfine Interaction, **Gunnar**

Jeschke

9:45-10:30 Density Operators and their Matrix Representation, **Geoffrey**

Bodenhausen

10:30-11:00 Coffee Break

11:00-11:45 Electron Nuclear Double Resonance Spectroscopy, **Daniella Goldfarb**

11:45-12:30 Electron Spin Echo Envelope Modulation Spectroscopy, **Sabine van**

Doorslaer

12:30-14:00 Lunch Break

14:00-14:45 Experimental Requirements for Electron/Nuclear Manipulation,

Thomas Prisner

14:45-15:30 Paramagnetic NMR, **Claudio Luccinat**

15:30-16:00 Coffee Break

16:00-16:45 Liquid State Dynamic Nuclear Polarization, **Marina Bennati**

16:45-17:30 Solid State Dynamic Nuclear Polarization, **Bob Griffin**

EU-NMR WS “New NMR pulse sequences for proteins, nucleic acids and protonless NMR”

Date: Friday, 6th July

Room: Medusa lounge, *floor -1*

Programme:

09:30-09:45 Introduction, **Rainer Wechselberger** (SONNMR, Utrecht)

09:45-10:45 ¹³C detection Experiments, **Isabella Felli** (CERM, Florence)

10:45-11:00 Coffee-Break

11:00-12:00 Fast NMR methods, **Bernhard Brutscher** (RALF-NMR, Grenoble)

12:00-13:00 Nucleic acids, **Christian Richter** (BMRZ, Frankfurt)

13:00-14:00 Lunch

14:00-15:00 Side chain assignment experiments, **Frank Löhr** (BMRZ, Frankfurt)

15:00-16:00 TROSY based methods, **Tammo Diercks** (CIC Biogune, Bilbao)

16:00 Closure