Conference on NMR Relaxometry and Related Methods
29/01/2018 – 31/01/2018
Turin (Italy)

Monday, 29th January

800 – 900  Registration

900 – 940  Opening and Administrative Information

940 – 1000  Introduction to NMR Relaxometry
Danuta Kruk
University of Warmia and Mazury in Olsztyn (Olsztyn, Poland)

Session I: Material Science

1000 – 1030  NMR Relaxometry and Nano-Systems, Dynamics of Solvents and Surface Adsorbed Species
Dermot Brougham
University College Dublin (Dublin, Ireland)

1030 – 1100  Effect of The Hollow Topology on the Surface Spin Dynamics in γ-Fe₂O₃ MNPs
Martina Basini
Dipartimento di Fisica, Università degli studi di Milano (Milano, Italy)

1100 – 1130  FFC Relaxometry, a Powerful Tool to study Meso-Scale Dynamics of Confined Fluids
Dominique Petit
CNRS and Université de Montpellier (Montpellier Cedex 5, France)

1130 – 1200  Coffee Break
Session II: Complementary Methods I

1200 – 1245
Order in Disorder - Structural (and Other) Properties of Metallic Glasses
Bogdan Idzikowski
Institute of Molecular Physics, Polish Academy of Sciences (Poznań, Poland)

1245 – 1315
Field-cycling NMR Combined with EPR and DNP for Studying the Wetting Behaviour of Liquids in Aged Rocks
Siegfried Stapf
TU Ilmenau (Ilmenau, Germany)

1315 – 1445
Lunch

Session III: Theory and other exotica

1445 – 1515
A Comprehensive Approach to Quadrupole Relaxation Enhancement
Danuta Kruk
University of Warmia and Mazury in Olsztyn (Olsztyn, Poland)

1515 – 1545
209Bi Quadrupole Relaxation Enhancement in Solids
Elżbieta Masiewicz
University of Warmia and Mazury in Olsztyn (Olsztyn, Poland)

1545 – 1615
Quantum Chemistry Property Surface and Machine Learning in Magnetic Resonance Relaxation Modelling
Pär Hakansson
University of Oulu (Oulu, Finland)

1615 – 1645
Nuclear Spin Noise and Relaxation
Norbert Müller
Faculty of Engineering and Natural Sciences (Linz, Austria)

1645 – 1715
Coffee Break

1715 – 1830
Poster Session

1830 – 1930
“Stellar time”
Tuesday 30th January

Section IV: Contrast Agents

900 – 930 Second- and Outer-Sphere Effects in MRI Contrast Agents
Giacomo PARIGI
University of Florence (Sesto Fiorentino, Italy)
Consorzio Interuniversitario Risonanze Magnetiche Metallo Proteine (CIRMMP) (Sesto Fiorentino, Italy)

930 – 1000 Relaxometric Characterization of Potential Mn(II)-Based MRI Contrast Agents
Carlos PLATAS IGLESIAS
Universidade da Coruña (A Coruña, Spain)

1000 – 1020 Rational Design of Efficient Contrast Agents for Molecular Magnetic Resonance Imaging
Celia BONNET
CNRS (Orleans, France)

1020 – 1040 Improving The Safety of the Metal Based Relaxation Agents
Gyula Tircso
University of Debrecen (Debrecen, Hungary)

1040 – 1100 Hypersensitive Systems for T1 MR Imaging: A Relaxometric Study of the Structuration of the Water Pocket Around Gd Chelates
Celine Henoumont
UMONS, NMR & Molecular Imaging Laboratory (Mons, Belgium)

1100 – 1130 Coffee break

Section V: Application of NMR Relaxometry to Food and similar systems

1130 – 1200 NMR-Based Metabolomics of Graviera Cheese. Monitoring Maturation Through High Resolution and Low Field Relaxometry/Diffusometry NMR Experiments
Apostolos SPYROS
University of Crete (Heraklion Crete, Greece)

1200 – 1230 Applications of TD-NMR in Colloidal Food Systems
Mecit Halil ÖZTOP
Middle East Technical University (Ankara, Turkey)
COST Action CA15209: “European Network on NMR Relaxometry”
http://www.cost.eu/COST_Actions/ca/CA15209
http://eurelax.uwm.edu.pl/

12:30 – 13:00  
FFC NMR Relaxometry Studies on Hyaluronan-Based Dermal Fillers and proteins  
Paweł Rochowski  
University of Warmia and Mazury in Olsztyn (Olsztyn, Poland)

13:00 – 14:30  
Lunch

Section VI: Contrast Agents and Quadrupole Relaxation Enhancement

14:30 – 15:00  
Quadrupole Enhanced Relaxation for Potential MRI Contrast Agents: Aspects of Structural Order in $^{209}$Bi Containing Nanoparticles  
Hermann Scharfetter  
Graz University of Technology (Graz, Austria)

15:00 – 15:20  
The Many Shapes of Nuclear Quadrupole Relaxation Rate Patterns in Selected Bi-Aryl-Compounds  
Christian Gösweiner  
Graz University of Technology (Graz, Austria)

15:20 – 15:40  
High Field FFC-MRI: System Validation with Iron Oxide Magnetic Nanoparticles  
Markus Bödenler  
Graz University of Technology (Graz, Austria)

15:40 – 16:00  
Relaxation in $^{209}$Bi Containing Systems  
Evrim Umut  
University of Warmia and Mazury in Olsztyn (Olsztyn, Poland)

16:00 – 16:30  
Coffee break

16:30 – 17:00  
Tutorial: FitLike: A Tool for The Quick Analysis of FFC-NMR Data  
Lionel Broche  
University of Aberdeen (Aberdeen, United Kingdom)

Section VII: Tumor studies

17:00 – 17:30  
Evidence for The Role of Intracellular Water Lifetime as a Tumour Biomarker by in Vivo Field-Cycling Relaxometry  
Silvio Aime  
University of Torino (Torino, Italy)
17:30 – 18:00  
**In Vivo Measurements of T1-Dispersion Maps in Kidney Tumor Mouse Models Using FFC-MRI Around 1.5 T**  
Nicolas Chanet  
Imagerie par Résonance Magnétique Médicale et Multi-Modalités IR4M (Orsay cedex, France)

18:00 – 18:30  
**Exploring Mesoporous Silica Nanoparticles as Multimodal Imaging and Theranostic Probes**  
Lorenzo Tei  
University of Eastern Piedmont in Alessandria (Alessandria, Italy)

18:30 – 19:00  
**pH-dependency: Improved Angiomri Contrast Agents and a Brief Insight on 31P-MRS**  
Peter Urbanovsky  
Charles University (Prague, Czech Republic)
Wednesday 31\textsuperscript{th} January

Section VIII:  Experimental studies

9\textsuperscript{00} – 9\textsuperscript{30}  

*Spatially-Resolved Relaxometric Mapping with an Inhomogeneous Transmit-Receive Coil Designed for Mouse in a Fast-Field Cycling Magnetic Resonance Imaging Insert*

Ludovic DE ROCHEFORT  
Aix-Marseille Université (Marseille, France); CNRS (Marseille, France)

9\textsuperscript{30} – 10\textsuperscript{00}  

*Methods for In-Vivo Acquisition of NMRD Profiles by FFC-MRI*

Lionel Broche  
University of Aberdeen (Aberdeen, United Kingdom)

10\textsuperscript{00} – 10\textsuperscript{30}  

*Towards a Model-Based NMR Lock for Fast Field Cycling NMR*

Giacomo Galuppini  
Identification and Control of Dynamic Systems Laboratory, University of Pavia (Pavia, Italy)

10\textsuperscript{30} – 11\textsuperscript{00}  

Coffee Break

Section IX:  Chemistry of nanosystems

11\textsuperscript{00} – 11\textsuperscript{30}  

*Study of The Transformation of Ferrihydrite to Goethite Nanoparticles*

Anne-Laure Rollet  
Laboratoire PHENIX (UMR 8234 -CNRS/UPMC) (Paris Cedex 5, France)

11\textsuperscript{30} – 12\textsuperscript{00}  

*Enhancing MRI Signal Through Nanoparticle Surface Chemistry*

Graeme J. Stasiuk  
University of Hull (Hull, United Kingdom)
Session X: Complementary Methods II

12:00 – 12:30  
**Joint Studies of Paramagnetic Systems by Means of ESR Spectroscopy and NMR Relaxometry**  
Danuta Kruk  
University of Warmia and Mazury in Olsztyn (Olsztyn, Poland)

12:30 – 13:00  
**Characterizing of Mesopores Modification in Metal-Organic Framework by Polymer Incorporation – NMR and Related Approaches**  
Jan Lang  
Charles University in Prague (Prague, Czech Republic)

13:00 – 14:30  
**Lunch**

Session XI: Diseases and NMR Relaxometry

14:30 – 14:50  
**T₁ and T₂ to Assess Membrane Water Permeability and Hemoglobin Generation in Plasmodium Falciparum Infected Red Blood Cells**  
Giuseppe Ferrauto  
University of Torino (Torino, Italy)

14:50 – 15:10  
**Stormorken Syndrome Disease Protein Studied by Means of NMR and Relaxometry**  
Petr Rathner  
Johannes Kepler University Linz (Linz, Austria)

Session XII: Ionic and molecular Systems

15:10 – 15:30  
**Molecular Dynamics in a “de Vries” Liquid Crystal: ₁H NMR Relaxometric Study**  
Tomaž Apih  
J. Stefan Institute (Ljubljana, Slovenia)

15:30 – 15:50  
**₁H FC NMR Relaxometry Study on Alcohols**  
Max Flämig  
University of Bayreuth (Bayreuth, Germany)

15:50 – 16:10  
**Study Of Room Temperature Ionic Liquids Containing Rare Earth Ions By EXAFS and NMR Relaxometry**
Guillaume MERIGUET  
Lab. PHENIX – UPMC Sorbonne Universités/CNRS (Paris, France)

16^{10} – 16^{30}  
**Dynamics of Ionic Liquid in Bulk and 3D Confinement Investigated by Means of \(^1\)H NMR relaxometry**  
Milosz Wojciechowski  
University of Warmia and Mazury in Olsztyn (Olsztyn, Poland)

16^{30} – 17^{00}  
**Coffee Break**

**Session XIII – Material Science II**

17^{00} – 17^{30}  
**Monitoring the Influence of Different Parameters on the Hydration Process of Cement Paste Via FFC NMR relaxometry**  
Ioan Ardelean  
Technical University of Cluj-Napoca (Cluj-Napoca, Romania)

17^{30} – 17^{50}  
**\(^1\)H NMR Relaxometric Study of Novel Layered Clays containing in The Structure Gd(III) and Eu(III) Ions**  
Stefano Marchesi  
University of Eastern Piedmont in Alessandria (Alessandria, Italy)

17^{50} – 18^{10}  
**Revealing The Influence of Silica Fume and Organosilane On the Porous Structure of Cement Paste Using \(^1\)H NMR Relaxometry in Low Fields**  
Andrea Cretu  
TU Ilmenau (Ilmenau, Germany)  
Technical University of Cluj-Napoca (Cluj-Napoca, Romania)

18^{10} – 18^{40}  
**Quadrupolar Relaxation Effects as Seen by Field-Cycling NMR Relaxometry – An Example of [14/15NH\(_2\)(CH\(_3\))\(_2\)]\(_3\)Sb\(_2\)Cl\(_9\) (DMACA)**  
Małgorzata Florek-Wojciechowska  
University of Warmia and Mazury in Olsztyn (Olsztyn, Poland)

18^{40} – 19^{00}  
**Dynamics of Dimethyl Butanols in Liquid, Supercooled Liquid, and Orientationally Disordered Crystalline Phases Studied by \(^1\)H FFC NMR Relaxometry**  
Elisa Carignani  
University of Pisa (Pisa, Italy)
Posters Session

**In-gel Magnetic Nanoparticles: Brownian Relaxation Contribution to The Longitudinal Relaxation Rate of Water Protons**
Matteo Avolio
University of Pavia (Pavia, Italy)

**Effects of Coating On Transversal and Longitudinal Nuclear Magnetic Resonance Relaxivity**
Francesca Brero
University of Pavia (Pavia, Italy)

**Low-Field NMR Studies of Water, Cyclohexane and Hexane Interaction with The Surface of Mesoporous Carbon Xerogels**
Calin Cadar
Technical University of Cluj-Napoca (Cluj-Napoca, Romania)

**Monitoring The Ageing of the Motor Oil Using Low Field NMR Relaxometry**
Manuela Codruta Badea
Technical University of Cluj-Napoca (Cluj-Napoca, Romania)

**A New Method for The Relaxometric Assessment of Intestinal Permeability Through the Oral Administration of MRI Contrast Agents**
Eliana Gianolio
University of Torino (Torino, Italy)

**Acquisition of NMRD Profiles for Early Diagnosis and Phenotyping of Breast Cancer in NeuT Murine Models**
Enza Di Gregorio
University of Torino (Torino, Italy)

**Polyacrylamide Nanoparticles: A Conjugatable Platform for Use in The Diagnosis and Treatment of Cancer**
Steven Yap
University of Hull (Hull, United Kingdom)

**Development of High Contrast Multimodal Imaging Agents**
Mitchell Clarke
University of Hull (Hull, United Kingdom)

**FFC-NMRD Profiles of Tumour Cells as A Diagnostic Tool for Biomedical Applications**
Maria Rosaria Ruggiero
University of Turin (Turin, Italy)
Relaxivity of \(\varepsilon\text{-Fe}_2\varepsilon\text{Al}_x\text{O}_3\) Nanoparticles: A Complex Study
Lenka Kubickova
Charles University in Prague (Praha, Czech Republic)

Developing High Field MRI Contrast Agents by Tuning The Rotational Dynamics: Bisaqua Gd(aaazta)-Based Dendrimers
Fabio Carniato
University of Eastern Piedmont in Alessandria (Alessandria, Italy)

Equilibrium, Kinetic and Relaxometric Characterization of Gd(III)-Complexes Formed with The N-Propionic Acid and N-Valeric Acid Containing AAZTA Ligand
Zsolt Baranyai
Bracco Imaging S.p.a, CRB/Discovery Trieste (Trieste, Italy)

A Fast Field Cycling System with Non-Linear Components Enabling Both Large \(B_0\) Shifts and Precise Current Control at Low Power
Nicolas Chanet
Imagerie par Résonance Magnétique Médicale et Multi-Modalités IR4M (Orsay cedex, France)

Ion Solvation in Ionic Liquids: Towards Rare Earth Recycling
Guillaume Meriguet
Lab. PHENIX – UPMC Sorbonne Universités/CNRS (Paris, France)

A new approach to overcome ‘field stability’ problem in FFC NMR
Giacomo Galuppini
Identification and Control of Dynamic Systems Laboratory, University of Pavia (Pavia, Italy)

Use of Magic Sandwich Echo Sequence to Characterize Powder Sugars
Mehmet Gazaloglu
Middle East Technical University (Ankara, Turkey)