



**Solid-State NMR Symposium**

July 20-23, 2009

**51<sup>st</sup> Rocky Mountain Conference on Analytical Chemistry**

July 19-23, 2009

Snowmass Conference Center - Snowmass, Colorado

**CONFERENCE CHAIR**

Kurt W. Zilm

**SOLID-STATE NMR SYMPOSIUM COMMITTEE**

Philip J. Grandinetti (Chair), Mei Hong (Chair-Elect), Zhehong Gan, Gillian Goward, Gerard Harbison, Gordon Kennedy, Len Mueller, Ulrich Scheler, Robert Schurko

**SOLID-STATE NMR SYMPOSIUM SPONSORS**

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**REGISTRATION**

Register at [www.rockychem.com](http://www.rockychem.com)

**Admission** to all technical sessions and the exhibition is by name badge only.

**Registration materials** may be picked up at the RMCAC registration area located at the Snowmass Conference Center between 12:00 noon and 5:00 pm on Sunday, July 19 or 8:00 am and 5:00 pm anytime Monday, July 20 through Thursday, July 23.

Conference Lunch

**Complimentary lunches** are being provided July 20, 21 and 22 to all registered symposia attendees. You will receive your luncheon ticket(s) upon check-in at the Rocky Mountain Conference registration desk. Tickets are date-specific and cannot be interchanged with another day. Lost tickets cannot be replaced. Unused tickets cannot be redeemed for another day. The lunch will be served each designated day from 12:00 noon until 1:00 pm.

**SSNMR Evening Hors D'oeuvre Reception:** A complimentary reception, sponsored by the NMR Vendors, will be held Tuesday Night (cash bar will be open).

**Sunday Bruker Users Meeting:** To register for the Bruker Users Meeting taking place on Sunday, July 19 access <http://www.bruker-biospin.com/rmc2009.html>

**Sunday Varian Users Meeting:** To register for the Varian Users Meeting taking place on Sunday, July 19 access

[http://www.varianinc.com/cgi-bin/nav?/products/nmr/events/solids\\_2009/index](http://www.varianinc.com/cgi-bin/nav?/products/nmr/events/solids_2009/index)

**MONDAY, JULY 20, 2009**

<b>Monday – Morning Session, Ulrich Scheler presiding</b>	
8:20 a.m.	Philip Grandinetti Opening Remarks
8:30 a.m.	<b>NMR Developments in Functional Materials Research.</b> Arno Kentgens, Radboud University Nijmegen
9:00 a.m.	<b>Atomic Motions in Ionic Hydrides: MgH<sub>2</sub>, NaMgH<sub>3</sub>, and LiBH<sub>4</sub>.</b> Mark Conradi, Washington University in St. Louis
9:30 a.m.	<b>NMR Study of Thermodynamics and Microstructures of Storage Systems and Adsorbate-Adsorbent Interactions.</b> Yue Wu, University of North Carolina Chapel Hill
10:00 a.m.	<i>Break</i>
10:30 a.m.	<b>NMR Studies of NaAlH<sub>4</sub> Based Hydrogen Storage Materials and Their Oxidation Products.</b> Margriet Verkuijlen, Radboud University, Nijmegen
10:50 a.m.	<b>Li-Argyrodites: Insights into a New Exciting Ion Conductor.</b> Barbara Koch, Westfälische Wilhelms-Universität Münster
11:10 a.m.	<b>Multinuclear Solid-State NMR and EPR of Magnetic Metal-Organic Frameworks (MOFs).</b> Marko Bertmer, Leipzig University
11:30 a.m.	<b>Solid-State NMR Studies of Energy Conversion and Energy Storage Materials.</b> Klaus Mueller, Universität Stuttgart
12:00 p.m.	<i>Lunch (included w/registration)</i>
<b>Monday – Afternoon Session, Zhehong Gan presiding</b>	
1:30 p.m.	<b>Proton-Driven Spin Diffusion in Magic-Angle Spinning Solid-State NMR.</b> Matthias Ernst, ETH Zurich
2:00 p.m.	<b>Dynamics of Large Nuclear Spin Systems from Low-Order Correlations in Liouville Space.</b> Mark Butler, Université de Lyon
2:20 p.m.	<b>New Developments in High-Resolution H<sup>1</sup> Solid-State NMR at High Field and MAS Rates up to 70 kHz.</b> Luís Mafra, University of Aveiro
2:40 p.m.	<b>Directly and Indirectly Detected Through-Bond Heteronuclear Correlation Solid-State NMR Spectroscopy In Strongly Coupled Spin Systems Under Fast MAS.</b> Marek Pruski, Iowa State University
3:00 p.m.	<i>Break</i>
3:30 p.m.	<b>Practical Aspects of Wideline QCPMG NMR on Half-integer Quadrupolar Nuclei.</b> Ivan Hung, National High Magnetic Field Laboratory
3:50 p.m.	<b>2D PASS-CPMG and Applications to Modified Silicate Glasses.</b> Krishna Dey, Ohio State University
4:10 p.m.	<b>New Applications of Phase-Modulated Pulses in Solid-State NMR of Quadrupolar Nuclei.</b> Luke O'Dell, University of Windsor
4:30 p.m.	<b>Increase Sensitivity by Detuning Your Probe.</b> Alexej Jerschow, New York University
5:00-7:00 p.m.	<i>Conference Reception</i>
<b>Monday – Evening Session</b>	
7:30-9:30 p.m.	SSNMR Poster Session A

**TUESDAY, JULY 21, 2009**

<b>Tuesday – Morning Session, Rob Schurko presiding</b>	
8:30 a.m.	<b>Understanding Xe NMR Spectra In Porous Materials.</b> Cynthia Jameson, University of Illinois at Chicago
9:00 a.m.	<b>Rapid Gas-Solid Isotope Exchange Within the Cyanuric acid-Melamine Complex Monitored In Situ by Solid-State NMR.</b> Monica Kinde-Carson, University of Nebraska Lincoln

9:20 a.m.	<b>Solid-State NMR Studies of Structural Order and Disorder in Siliceous Zeolites and Zeolite Nanoparticles.</b> Ramzy Shayib, University of California Santa Barbara
9:40 a.m.	<b>Spin-dependent Splitting of the GaAs Bandstructure: Fine Structure From a Combination of OPNMR, Magnetoabsorption, and Theoretical Calculations.</b> Sophia Hayes, Washington University in St. Louis
10:00 a.m.	<i>Break</i>
10:30 a.m.	<b>Solid-State NMR of Disordered And Heterogeneous Nano-scale Materials.</b> Jeremy Titman, University of Nottingham
11:00 a.m.	<b>Probing the Structure of Natural-abundance Biomaterials.</b> Melinda Duer, University of Cambridge
11:30 a.m.	<b>Title TBA,</b> Gary Drobny, University of Washington
12:00 p.m.	<i>Lunch (included w/registration)</i>
<b>Tuesday – Afternoon Session, Vaughan Symposium, Philip Grandinetti presiding</b>	
1:30 p.m.	<i>Vaughan Lecture:</i> <b>Probing Molecular Dynamics with Solid-State NMR in Isotopically Enriched Proteins and Peptides.</b> Kurt Zilm, Yale University
2:30 p.m.	<b>Fuel Cell Electrocatalysis: Read Kurt Zilm's Paper.</b> Jeff Reimer, University of California Berkeley
3:10 p.m.	<i>Break</i>
3:40 p.m.	<b>Aggregation of Borate Salts in Hydrocarbon Solvents.</b> Hans Thomann, ExxonMobil
4:20 p.m.	<b>Fruit of the Vine, Two Buck Chuck, or Lighter Fluid: Applying NMR, Dielectric Spectroscopy, and GC/MS, to Wine and Homeland Security Problems.</b> Matthew Augustine, University of California Davis
<b>Tuesday – Evening Session</b>	
5:00-7:00 p.m.	<i>SSNMR Evening Hors D'oeuvre Reception</i>
7:30-9:30 p.m.	SSNMR Poster Session B

### WEDNESDAY, JULY 22, 2009

<b>Wednesday – Morning Session</b>	
	Free time to explore area
12:00 p.m.	<i>Lunch (included w/registration)</i>
<b>Wednesday – Afternoon Session, Gerry Harbison presiding</b>	
1:30 p.m.	<b>NMR Techniques for High-Z Spin-1/2 Isotopes in Complex Thermoelectric Tellurides.</b> Klaus Schmidt-Rohr, Iowa State University
1:50 p.m.	<b>NMR Lineshapes From AB Spin Systems in Solids: The Role of Antisymmetric Spin-Spin Coupling.</b> Kristopher Harris, University of Alberta
2:10 p.m.	<b>Structure and Dynamics in LDH-Polymer Nanocomposites.</b> Ulrich Scheler, Leibniz Institute of Polymer Research Dresden
2:30 p.m.	<b>Detection of Alkali Metal Ions in Organic and Biological Solids: Approaching the Intrinsic Resolution Limit.</b> Gang Wu, Queen's University
3:00 p.m.	<i>Break</i>
3:30 p.m.	Presentation of Laura Marinelli Award
3:40 p.m.	<b>Backbone and Side Chain Assignments in Solid-State Proteins using J-Based 3D Correlation Spectroscopy.</b> Leonard Mueller, University of California Riverside
4:00 p.m.	<b>Solid-State NMR Studies of Cu<sup>2+</sup> Binding to Alzheimer's <math>\beta</math>-amyloid Fibrils.</b> Sudhakar Parthasarathy, University of Illinois at Chicago
4:20 p.m.	<b>Dynamic Nuclear Polarization at 263 GHz and Applications to Biological Solids.</b> Shane Pawsey, Bruker BioSpin

4:40 p.m.	<b><math>m,n</math>Q-SEMA - An SLF Technique for Measuring Heteronuclear Dipolar Couplings in Static Oriented Systems.</b> Sundaresan Jayanthi, Indian Institute of Science
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### THURSDAY, JULY 23, 2009

<b>Thursday – Morning Session, Mei Hong presiding</b>	
8:30 a.m.	<b>Solid-State NMR Approaches to Study Structure and Organization of Complex Biomolecules.</b> Marc Baldus, Utrecht University
9:00 a.m.	<b>Magic Angle Spinning Studies of Microtubule-Associated Protein Assemblies.</b> Tatyana Polenova, University of Delaware
9:20 a.m.	<b>Solid-State NMR Probe Developments for the Study of Proteins in Their Native Environments.</b> Christopher Grant, University of California San Diego
9:40 a.m.	<b>Solid-State NMR Determination of the Membrane Locations of Viral Fusion Peptides and Determination of Native Conformation of Recombinant Proteins in Inclusion Bodies in Whole Bacterial Cells.</b> David Weliky, Michigan State University
10:00 a.m.	<i>Break</i>
10:30 a.m.	<b>Sorting Structural Reality from Among the Artifacts: The M2 Proton Channel.</b> Timothy Cross, Florida State University
11:00 a.m.	<b>Solid-State NMR Studies of Membrane Proteins.</b> Vladimir Ladizhansky, University of Guelph
11:30 a.m.	<b>Bacterial Cell-Wall Architecture by REDOR.</b> Jacob Schaefer, Washington University in St. Louis
12:00 p.m.	Philip Grandinetti and Mei Hong <b>2010 Vaughan Lecturer Announcement</b> <b>Closing Remarks</b>