

Fourth Annual Practical  
**Applications of NMR**  
in Industry Conference

HILTON HOUSTON NORTH • HOUSTON, TEXAS



February 15 – 18, 2016

# PROGRAM GUIDE



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## Conference Proceedings Link

Please use the link below to access copies of the speaker presentations that have been submitted to date, as well as conference agendas, poster abstracts, speaker information and sponsor and exhibitor websites. Following the conference, we will send out this link via email containing any updated presentations and/or late submissions.

Please note that the link will only remain active for 6 weeks after the meetings conclude.

CONFERENCE PROCEEDINGS LINK	
<b>Link:</b>	<a href="http://cii-resource.com/NMR-04-01/login.asp">http://cii-resource.com/NMR-04-01/login.asp</a>
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We do our best to collect as many presentations as we are able, but due to proprietary and/or trademark issues, some speakers may not be able to include their slides on our website. If you are looking for a specific set of slides that is not on the site, please contact the speaker directly for more information.

If you have not received the updated link two weeks after the close of the meeting, please contact **Pamela Gerardi** in Customer Service at [pgerardi@healthtech.com](mailto:pgerardi@healthtech.com).

## Monday, February 15

- 4:30 pm**    **Pre-Conference Registration** (*Raphael Foyer*)
- 5:30**        **Welcome Reception in the Exhibit Hall with Poster Viewing, Even and Odd Numbered Posters**  
(*Raphael B*)
- 6:45**        **End of Day**

## Tuesday, February 16

(*Raphael A*)

- 8:00 am**    **Conference Registration and Morning Coffee** (*Raphael Foyer*)
- 8:45**        **Chairpersons' Welcome**  
*Gonzalo Hernandez, Vis Magnetica NMR Consulting*  
*Kristie M. Adams, DuPont*

### PETROCHEMICAL/REFINERY

- 8:50**        **Chairperson's Remarks**  
*Katherine Wu, Albemarle Corporation*
- 9:00**        **Solving Problems in the Oil Industry by NMR**  
*Sonia Menezes, Ph.D., Senior Research Consultant, Chemistry, Petrobras*
- 9:30**        **Characterization of Solid Materials by DNP Enhanced Solid State NMR Spectroscopy**  
*Marek Pruski, Ph.D., Senior Scientist; Professor, Department of Chemistry, Ames Laboratory; Iowa State University*
- 10:00**      **Earth Subsurface Exploration by Magnetic Resonance for Oilfield Applications: No Longer a Niche Service**  
*Nate Bachman, Ph.D., Physicist and Project Manager, Engineering, Schlumberger*
- 10:30**      **Coffee Break in the Exhibit Hall with Poster Viewing, Even Numbered Posters** (*Raphael B*)

### APPLICATIONS OF NMR FOR PHARMACEUTICALS I

- 11:20**      **Chairpersons' Remarks**  
*Joe Ray, Baxter Healthcare Corporation*  
*Daron Freedberg, CBER, FDA*
- 11:30**      **NMR Approaches in Bioconjugation: Toward Better Characterized Vaccines**  
*Kelly Sackett, Ph.D., Senior Scientist, Biotherapeutics, Pharmaceutical Sciences, Pfizer*



Tuesday, February 16

(Raphael A)

**12:00 pm NMR Profiling and Comparison of Higher Order Structure (HOS) of Protein Therapeutics**

*Kang Chen, Ph.D., Staff Fellow, Center for Drug Evaluation and Research, FDA*

**12:30 Biosimilar Structural Comparability Assessment by NMR: From Small Proteins to Monoclonal Antibodies**

*Bostjan Japelj, Ph.D., Senior Scientist, Protein Biophysics and Bioinformatics, Sandoz Biopharmaceuticals*

BRUKER LUNCHEON PRESENTATION

**1:00 Software Assisting Your Small Molecule Workflow**

*Sandra Groscurth, Ph.D., Bruker BioSpin AG*

*Kim Colson, Ph.D., Business Development Manager, Research & Development  
Division, Bruker BioSpin*

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**1:45 Session Break**

QNMR

**2:30 Chairpersons' Remarks**

*Torsten Schoenberger, Bundeskriminalamt*

*John Marino, NIST*

**2:40 Between Metabolomics and Metrology: The Development Paths of Quantitative NMR**

*Guido Pauli, Pharm.D., Ph.D., Professor and University Scholar, College of Pharmacy, University of Illinois, Chicago*

**3:10 Recent Research Developments in the Certification of Organic Reference Materials by Quantitative NMR at the Highest Metrological Level**

*Markus Obkircher, Ph.D., Senior Manager, R&D, SigmaAldrich*

**3:40 Polyethylene Glycol Quantitation in Biofluids Supporting Drug Discovery**

*Purnima Khandelwal, Ph.D., Senior Research Investigator, Discovery Analytical Sciences, Bristol-Myers Squibb*

**4:10 Networking Reception in the Exhibit Hall with Poster Viewing, Odd Numbered Posters (Raphael B)**

**5:10 End of Day**

Wednesday, February 17

(Raphael A)

**8:00 am** Morning Coffee (*Raphael Foyer*)

**8:45** Chairpersons' Welcome  
*Gonzalo Hernandez, Vis Magnetica NMR Consulting*  
*Kristie M. Adams, DuPont*

>> POSTER SPOTLIGHTS <<

**8:50** Chairperson's Remarks  
*Jim DeFelippis, The Dow Chemical Company*

**9:00** 35Cl Dynamic Nuclear Polarization Solid-State NMR of Active Pharmaceutical Ingredients  
*Robert W. Schurko, University of Windsor*

**9:20** Aqueous Mixture Characterization Using Selective 1D Total Correlation Spectroscopy (seTOCSY)  
*Nathan Rau, Dow Chemical Company*

**9:40** NMR Relaxometry Fingerprinting of Synthetic Materials Using a Benchtop NMR System  
*Philipp Moerchel, Research Center for Magnetic Resonance Bavaria (MRB)*

**10:00** Coffee Break in the Exhibit Hall with Poster Viewing, Even Numbered Posters (*Raphael B*)

SOLIDS

**10:50** Chairperson's Remarks  
*Michael C. Davis, Bridgestone Americas Center for Research and Technology*

**11:00** The Use of NMR in Kidney Stone Disease Risk Assessment  
*Graham Jackson, Ph.D., Professor, Chemistry, University of Cape Town*

**11:30** Application of Advanced Solid State NMR Techniques for Structure Determination of Technical Catalysts  
*Torsten Gutmann, Ph.D., Staff Scientist, Chemistry, Technical University Darmstadt*

**12:00 pm** Solid State NMR Investigations of Silane Silica Interactions in Cured Elastomers  
*Michael R. Beaulieu, Ph.D., Materials Research Scientist, Bridgestone Americas Center for Research and Technology*

JEOL USA LUNCHEON PRESENTATION

**12:30** Adventures with Sparse Sampling and Cool Adiabatic Experiments  
*Ron Crouch, NMR Applications Consultant, JEOL USA*

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**1:15** Session Break

Wednesday, February 17

(Raphael A)

## LOW-FIELD/COMPACT NMR

- 2:00**      **Chairperson's Remarks**  
*David Cistola, University of North Texas Health Science Center*
- 2:10**      **Dynamics and Wettability of Petroleum Fluids in Microporous Shale Oil Rocks: A Fast Field Cycling NMR Relaxometry Approach**  
*Jean-pierre Korb, Ph.D., Director of Research, CNRS, Physics of Condensed Matter Laboratory, Ecole Polytechnique*
- 2:40**      **New Frontiers in Medical Diagnostics by T2MR®**  
*Eugenio Daviso, Ph.D., Senior NMR Scientist, T2 Biosystems*
- 3:10**      **Rapid Determination of Fat Content in Microbial Biomass or Biomeal by Time Domain NMR**  
*An-Ni Chang, Ph.D., Analytics, DSM Nutritional Products*
- 3:40**      **Refreshment Break in the Exhibit Hall with Poster Viewing, Odd Numbered Posters (Raphael B)**

## EXOTICA

- 4:35**      **Chairperson's Remarks**  
*John Edwards, Process NMR Associates, LLC*
- 4:45**      **Heavy Oil Viscosity Predictions from Low Field NMR**  
*Magdalena Sandor, Ph.D., Halliburton*
- 5:15**      **Spin Diffusion Editing for High Order Structure Fingerprints of Antibodies**  
*Qin Zou, Ph.D., Senior Principal Scientist, Analytical Research and Development, Pfizer, Inc.*
- 5:45**      **Integrated Perfusion Systems for In Situ NMR Metabolomics of Microfluidic Cell Cultures**  
*Ali Yilmaz, Ph.D., Research Fellow, Chemistry, University of Southampton*
- 6:15**      **Networking Reception in the Exhibit Hall with Poster Viewing, Even Numbered Posters & Last Chance to Drop Off Your Entry for the Spectrum Contest (Raphael B)**
- 7:15**      **End of Day**

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Thursday, February 18

(Raphael A)

**8:15 am**    **Morning Coffee** *(Raphael Foyer)*

**8:45**        **Chairpersons' Welcome**  
*Gonzalo Hernandez, Vis Magnetica NMR Consulting*  
*Kristie M. Adams, DuPont*

## FOOD APPLICATIONS

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**8:50**        **Chairperson's Remarks**  
*Adriana Carvalho de Souza, DSM Biotechnology Center*

**9:00**        **Use of NMR as an Advanced Analytical Tool to Interpret Processing-Induced Changes during Manufacture of Milk Products and Dairy Ingredients**  
*Mattia Boiani, Walsh Fellow, Chemistry and Technology, Teagasc*

**9:30**        **Rapid Quantitative NMR Analysis of Oils to Combat Edible Oil Adulteration**  
*Sue Wang, Ph.D., Manager, BDL, ITRI*

**10:00**      **Shear-Induced Flow Behavior of Food Dispersions as Viewed by Rheo-MRI**  
*John Van Duynhoven, Ph.D., Head, Spectroscopy & Imaging Group, Unilever*

**10:30**      **Coffee Break in the Exhibit Hall with Poster Viewing, Odd Numbered Posters** *(Raphael B)*

## PLANT PRODUCTION PROBLEM SOLVING

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**11:20**      **Poster Awards Announced and Spectrum Contest Answer Revealed with Prizes Awarded**  
*Poster awards provided by MRC / Wiley*

**11:25**      **Chairpersons' Remarks**  
*Jim DeFelippis, The Dow Chemical Company*  
*Molly Bohlen, Procter & Gamble*

**11:30**      **Online NMR Spectroscopy as a Reference Tool for Model Developments – Successful Approaches in Process Analytical Technology**  
*Klas Meyer, Research Assistant, Division 1.4 Process Analytical Technology, BAM Federal Institute for Materials Research and Testing*

**12:00**      **Utilizing 1D Correlation (NOE/TOCSY) and Database Techniques for Fast Structure Elucidation and Quantitation in a Production Environment**  
*James Surface, Ph.D., NMR Team Leader, Analytical, PPG Industries*

Thursday, February 18

(Raphael A)

ASPECT IMAGING LUNCHEON PRESENTATION

**12:30 Online Process NMR Applications**

*Tal Cohen, Director, NMR Division, Aspect Imaging*

Sponsored by:  
 **aspectimaging**

**1:15 Session Break**

## APPLICATIONS OF NMR FOR PHARMACEUTICALS II

**2:00 Chairpersons' Remarks**

*Kathleen Farley, Pfizer, Inc.*

*Daron Freedberg, CBER, FDA*

**2:10 Practical NMR Applications for Structure Assessment of Monoclonal Antibody Therapeutics**

*Robert Brinson, Ph.D., Research Chemist, Institute for Bioscience and Biotechnology Research (IBBR), NIST*

**2:40 Residual Dipolar Couplings to Assist Structural Analysis in Drug Discovery**

*Roberto Gil, Ph.D., Research Professor & Director, NMR Facility, Chemistry, Carnegie Mellon University*

**3:10 The Changing Role of NMR in Drug Discovery: A View from the Perspective of a Drug Metabolism Scientist**

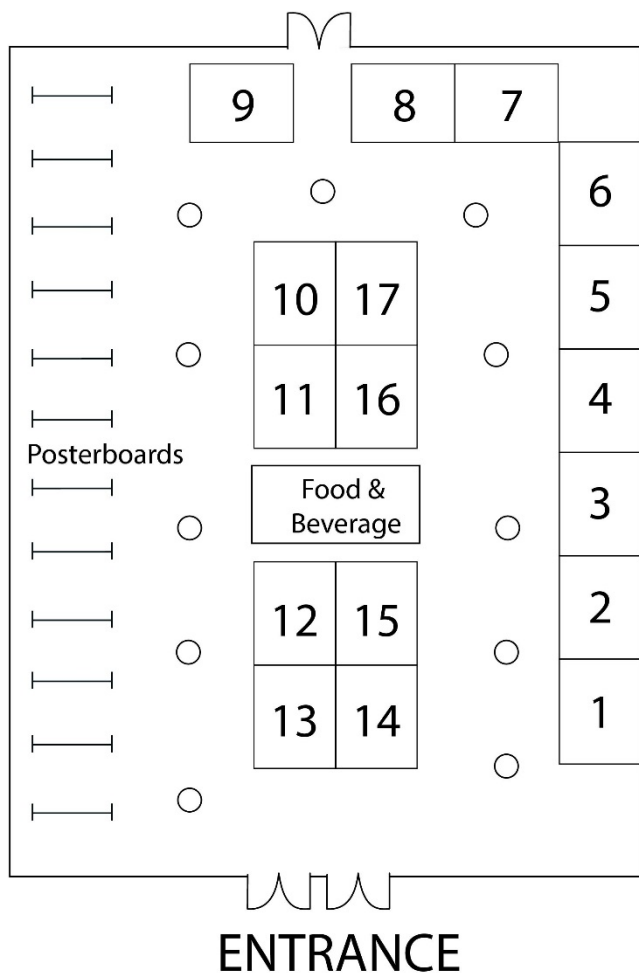
*Greg Walker, Senior Principal Scientist, PDM, Pfizer*

**3:40 End of PANIC 2016**



## Floor Plan, Exhibit and Poster Schedule

[Location: Raphael B]



**KEY**

- 8 x 10 Exhibitor Booth
- Poster Boards
- Cocktail Table

COMPANY	BOOTH
Advanced Chemistry Development (ACD/Labs)...	10
Anasazi Instruments Inc. ....	1
Bruker Corporation .....	12 & 13
Chenomx Inc.....	5
COSA Xentaur Corporation.....	9
HTS-110 .....	4
JEOL USA, Inc.....	11
Magritek.....	16
Mestrelab Research, S.L. ....	15
MilliporeSigma .....	6
Nanalysis Corporation.....	8
Oxford Instruments .....	2
Quantum Design .....	14
Stelar .....	17
Wilmad Labglass .....	3

### Exhibit and Poster Hours

<b>Monday</b>	
5:30 – 6:45 pm	Welcome Reception - <b><i>Even and Odd Posters</i></b>
<b>Tuesday</b>	
10:30 – 11:20 am	Coffee Break - <b><i>Even Posters</i></b>
4:10 – 5:10 pm	Networking Reception - <b><i>Odd Posters</i></b>
<b>Wednesday</b>	
10:00 - 10:50 am	Coffee Break - <b><i>Even Posters</i></b>
3:40 – 4:35 pm	Refreshment Break - <b><i>Odd Posters</i></b>
6:15 - 7:15 pm	Networking Reception - <b><i>Even Posters &amp; Last Change to Drop Off Your Entry for the Spectrum Contest</i></b>
<b>Thursday</b>	
10:30 – 11:20 am	Coffee Break - <b><i>Odd Posters</i></b>

❖ Exhibit hours are subject to change. ❖

## Sponsor & Exhibitor Company Descriptions

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### **Advanced Chemistry Development, Inc. (ACD/Labs)**

**Booth 10**

8 King Street East, Suite 107

Toronto, ON M5C 1B5

Canada

416.368.3435

[www.acdlabs.com](http://www.acdlabs.com)

Advanced Chemistry Development, Inc., (ACD/Labs) is an informatics company that provides solutions in support of R&D. Our software platforms unify analytical and chemical information in a collaborative environment; and provide tools that enable scientists to extract, capture, and apply knowledge from analytical experiments and predicted molecular property data.

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### **Anasazi Instruments**

**Booth 1**

4101 Cashard Avenue, #103

Indianapolis, IN 46203

317.783.4126

[www.aiinmr.com](http://www.aiinmr.com)

Manufactures highest resolution, sensitivity and stability permanent magnet based NMR instruments. The Eft-60/90MHz models can be tailored to users' needs, such as ultra-high sensitivity 1H, two channel 1H/13C or 1H/31P and two channel multinuclear 1H/19F/X (tunable X). Both instruments are available with a robotic sample changer for unattended operation.

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### **Aspect Imaging**

1544 Sawdust Road, Suite 601

Spring, TX 77380

281.546.5364

[www.aspectimaging.com](http://www.aspectimaging.com)

Aspect Imaging's PM - NMR solution for real time analysis of crude oil provides a Rapid Crude Assay in just 3 minutes. The basis of the RCA technology allows our customers to optimize distillation processes in real time monitoring, thus saving hundreds of millions per year in refining costs.

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### **Baxter International Inc.**

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224.948.2000

[www.baxter.com](http://www.baxter.com)

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## **Bruker BioSpin**

**Booth 12 & 13**

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Billerica, MA 01821  
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www.bruker.com

Bruker offers the world's most comprehensive range of NMR research tools. With over 50 years of experience, Bruker remains strongly committed to meeting its customers' needs by continuing to revolutionize the design, manufacture and distribution of life science, process control and analytical research tools based on magnetic resonance core technology.

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## **Cambridge Isotope Laboratories, Inc.**

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Tewksbury, MA 01876  
978.749.8000  
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CIL is the world leader in the manufacture and separation of stable isotopes and stable isotope-labeled compounds for use in traditional and biomolecular NMR. Our large inventory includes NMR solvents and reference standards, amino acids, deuterated buffers, nucleotide-5'-triphosphates, cell growth media and reagents for labeling recombinant protein expressed in *E. coli*, insect and mammalian cells.

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## **Chenomx Inc.**

**Booth 5**

10230 Jasper Avenue, Suite 4350  
Edmonton, AB T5J 4P6  
Canada  
780.432.0033  
www.chenomx.com

Chenomx supports quantitative metabolite measurements with NMR. Chenomx patented Targeted Profiling turns complex MR spectra into tables of metabolites and their concentrations. The quantitative approach to metabolomics facilitates the discovery and testing of marker patterns for diagnostics, cell metabolism and qNMR applications. Chenomx offers both software licensing and analysis services.

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## **COSA Xentaur Corporation**

**Booth 9**

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631.345.3434  
www.cosaxentaur.com

Cosa Xentaur has been providing innovative, affordable solutions to the fats, oils, and renewable fuels industries. The SpinPulse Time Domain NMR (TD-NMR) for solid fat content (SFC) and oil and moisture in seeds, nuts, and food products; Aspect 60 MHz on-line and benchtop NMR (ideal for bio-reaction monitoring).

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## **HTS-110 Limited**

**Booth 4**

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69 Gracefield Road  
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New Zealand  
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HTS-110 offers innovative cryogen-free magnets based on high temperature superconducting (HTS) wire. HTS-110 200-400 MHz systems bring the convenience of bench-top NMR with the power of high field: robust, relocatable magnets that are easy to site and use, providing an exciting alternative for NMR at your bench or industrial process.



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## JEOL USA, INC

Booth 11

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www.jeolusa.com

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## J S Research, Inc.

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www.jsresearch.com

J S Research, Inc. is a major NMR probe research, manufacture and service company. We make customized special probe, also we provide high quality probe repairing, maintenance and modification for all kind of probes from all NMR companies. J S Research, Inc. was established in 1995 near Boston, USA

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## Magritek

Booth 16

6440 Lusk Boulevard, Suite 108  
San Diego, CA 92121  
855.667.6835  
www.magritek.com

Magritek is a world leading company developing and manufacturing portable NMR solutions for education, research and industrial applications. Spinsolve™ is the first benchtop NMR instrument capable of multinuclear (1H, 19F, 31P, 13C) and multidimensional NMR that does not require cryogenics and is maintenance free. Magritek is exhibiting Spinsolve®, a revolutionary benchtop NMR spectrometer that provides exceptional performance in a low-cost, convenient and compact package.

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## Mestrelab Research

Booth 15

Feliciano Barrera, 9B-Bajo  
Santiago de Compostela, A Coruña 15706  
Spain  
+34 881 97 67 75  
mestrelab.com

Mestrelab Research specializes in the development of software for the processing, analysis and databasing of Analytical Chemistry data.

Our main product Mnova is a multiplatform (Windows/Mac/Linux) and multivendor software suite designed for combined NMR and LC/GC/MS techniques.

Our newest product Mbook, is an ELN designed for the synthetic chemist.



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## MilliporeSigma (A business of Merck KGaA, Darmstadt, Germany)

Booth 6

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[www.milliporesigma.com](http://www.milliporesigma.com)

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## Nanalysis Corp.

Booth 8

Bay 4, 4500 - 5 Street NE  
Calgary, AB T2E 7C3  
Canada

403.769.9499

[www.nanalysis.com](http://www.nanalysis.com)

Nanalysis develops and manufactures compact Nuclear Magnetic Resonance (NMR) spectrometers for the laboratory instrumentation market. The NMReady line of 60 MHz compact NMR spectrometers are truly revolutionary. Weighing in at 50lbs, the NMReady-60Pro and NMReady-60e both offer spectroscopic resolution at a fraction of the cost of current NMR instruments.

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## National Institute of Standards and Technology

100 Bureau Drive  
Gaithersburg, MD 20899  
301.975.NIST (6478)

[www.nist.gov](http://www.nist.gov)

Founded in 1901, NIST is a non-regulatory federal agency within the U.S. Department of Commerce. NIST's mission is to promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life.

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## Oxford Instruments

Booth 2

300 Baker Avenue, Suite 150  
Concord, MA 01742  
978.369.9933

[www.oxford-instruments.com](http://www.oxford-instruments.com)

Stop by Booth 2 to see Pulsar – the only 60 MHz, sub-0.7 Hz resolution, 1H/19F/13C benchtop NMR spectrometer on the market. Pulsar performs 1D and 2D experiments, including relaxometry, COSY, TOCSY, J-Resolved, HETCOR, and DEPT, without a cryogenic magnet. Also see the MQC NMR analyser, perfect for industrial QC.

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## Pfizer Inc.

235 East 42nd Street  
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212.733.2323

[www.pfizer.com](http://www.pfizer.com)

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**Booth 14**

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## **Stelar**

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Stelar specializes in unique Fast Field Cycling NMR relaxometers. These offer a versatile solution for characterization of the dynamics of many substances and complex mixtures in academic and industrial research (MRI contrast agents, proteins, polymers, electrolytes, rocks and petroleum) as well as a novel method for quality checks or fingerprinting.

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ISO 9001:2008 certified manufacturer of specialty glassware with highest quality. Product line covers Economy and Precision NMR tube, Gas-tight NMR tube, Small volume and external referencing NMR tube, NMR reference standards, NMR sampling accessories, MAS rotors, dewars for variable and EPR products. Also specialized in customization.

## Poster Presenters

(Location: Raphael B)

Presenting Monday, February 15<sup>th</sup> through Thursday, February 18<sup>th</sup>

### Advanced Chemistry Development, Inc.

1 Sergey Golotvin; Rostislav Pol; Brent Pautler; Joe DiMartino; Arvin Moser; and Patrick Wheeler: *Novel Means for Identification and Quantitation of Mixture Components by NMR*

### Alkermes, Inc.

2 Mark D. Trone and David Wang: *Drug Substance Potency Determination by Quantitative NMR (qNMR) and Low Level Impurity Quantitation with <sup>13</sup>C-<sup>1</sup>H NMR Satellite Signals*

### Amgen, Inc.

3 Krishnakumar Ranganathan; Yuan-Qing Fang; Richard D. Crockett; Stephen A. Osgood; Sheng Cui; and Tsang-Lin Hwang: *Studies of Coupling Kinetics and Conversion Rates and Correlations to Color Tests for Solid Phase Peptide Synthesis by NMR*

### BAM Federal Institute for Materials Research and Testing

4 Patrick Gräßer; Simon Kern; Nicolai Zientek; Andrea Paul; Michael Maiwald; and Klas Meyer: *Field Integration of Benchtop NMR Instruments for Online Monitoring and Process Control of a Modular Industrial Reaction Step*

5 Simon Kern; Michael Maiwald; and Klas Meyer: *CONSENS - Integrated Control and Sensing for Sustainable Operation of Flexible Intensified Processes*

6 Klaus Rademann; Michael Maiwald; and Klas Meyer: *qNMR Under Pressure – Applications on Liquefied Gases and Mixtures*

### Bristol-Myers Squibb

7 Adele Patterson; Yande Huang; Scott A. Miller; and Qingmei Ye: *Structural Characterization and Two-Dimensional HSQC NMR Quantitative Determination of the Degradation Product of PVP/VA Copolymer*

### Bruker BioSpin

8 Brian Killday and Kimberly L. Colson: *Cell Culture Media: NMR Approaches to Evaluating Quality and Nutrient Consumption*

9 Till Kühn; Sebastian Wolf; Sven Brehmer; Jens Fuchser; Meike Hamester; and Sandra Groscurth: *Automated Structure Verification by Combining High Resolution Accurate MS with NMR Data Analysis*

### Dow Chemical Company

10 Nathan Rau: *Aqueous Mixture Characterization Using Selective 1D Total Correlation Spectroscopy (seTOCSY)*

### Dublin City University

11 Michael D. Mantle; Aylvin Dias; Dermot Brougham; Victor M. Litvinov; and Bing Wu: *Effect of H-Bonding on the Diffusion of Drug Analogue Inside Crosslinked Hydrogel*

### Duke University

12 Anthony A. Ribeiro; Timothy D. Spitzer; and Andrea M. Sefler: *A Practical Survey of the Indirect 1-Bond H-C Correlation Experiments Available Within VnmrJ 4.2/Chempack 7.1*

## **Genentech, Inc.**

13 Matt Delsman; Nick Magarian; Yung-Hsiang Kao; and Ken Skidmore: *Nanogram/mL Analysis of Formulated Protein Drug Product: Combating Lyophilizer Leaks Using NMR*

## **INNIT SAS**

14 Laetitia Le Falher; Delphine Lioger; Hervé This; and Camille Doyen: *Thermal Degradation of Saccharides in Water Analyzed by In Situ 1H Quantitative NMR*

## **ISOThrive, LLC**

15 Lee Madsen II: *Evaluation of a Turn-Key Variable Temperature (VT) Probe for Low-Field Applications*

## **JEOL RESONANCE, Inc.**

16 Naoki Saito; Taichi Yamazaki; Hiroaki Sasakawa; Takeshi Saito; and Takako Suematsu: *The Influence of Data Processing on Results of qNMR Interlaboratory Comparison Study*

## **Korea Basic Science Institute**

17 Hyun Na Kim and Oc Hee Han: *Interaction of Side-Chains with Water in Swollen Nafion Polymer Electrolyte Membranes*

## **Magritek, Inc.**

18 F. Casanova; A. Coy; B. Manz; S. L. Moore; J. Perlo; and Paul Bowyer: *Diffusion-Ordered Benchtop NMR Spectroscopy*

19 E. McCarney; A. Coy; F. Casanova; B. Manz; S. L. Moore; and Paul Bowyer: *Application of Benchtop NMR Spectroscopy to the Identification and Quantitation of Nutraceuticals and Pharmaceuticals*

## **Mestrelab Research S.L.**

20 Torsten Schoenberger and Michael A. Bernstein: *Automation of qNMR Analysis for Dissimilar Sample Mixtures*

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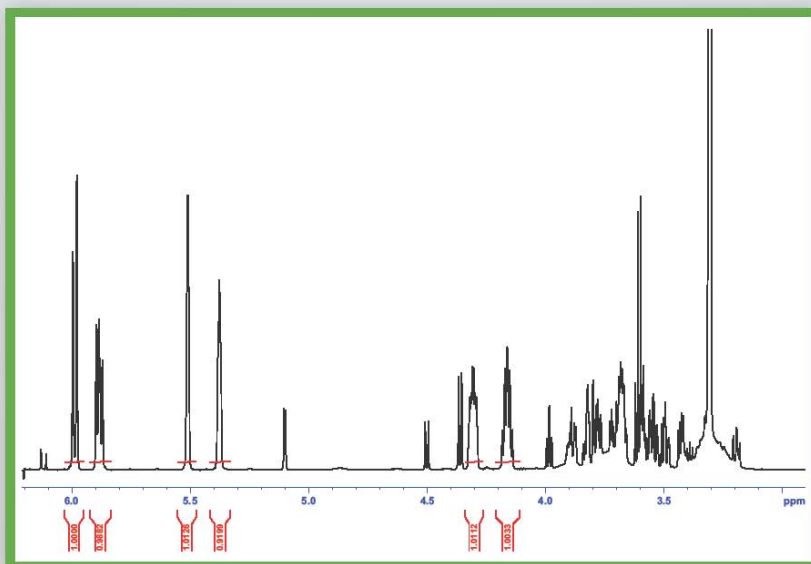
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