

Invitation & Call for Abstracts

For the conference “Tools for Epilepsy Research: Tutorials & Updates”
Thursday August 6 through Saturday August 8, 2009
Biological Science and Learning Center (BSLC)
924 E 57th Street
Chicago, IL 60637

“Tools for Epilepsy Research: Tutorials & Updates” organized by the Center for Integrative Neuroscience and Neuroengineering Research (CINNR) and the Intellectual and Developmental Disabilities Research Center (IDDRC), will include speakers that are specialized in different areas of epilepsy research from the United States, Europe and Australia. We ask for your contribution in the form of an abstract. From these submissions we will select oral and poster presentations. Guidelines for abstract submission can be found below. We will emphasize the following topics in the context of epilepsy research:

- Signal Analysis & Mathematical and Computational Models;
- *In vivo* and *in vitro* Animal Models;
- Genetic Models and Molecular Techniques.

However, submissions outside of these topics are invited as well.

Invitation

Epilepsy is complex and multifaceted; consequently, a myriad of specialists, including epileptologists, neuroscientists, geneticists, physicists, chemists, mathematicians, computer scientists, and engineers, have contributed to the total body of knowledge about this often devastating disease. Individual researchers often struggle to keep pace with, let alone integrate, findings and techniques from disciplines beyond their area of expertise. For example, a researcher focusing on genetic models of epilepsy may have difficulty understanding results from state-of-the-art computer modeling and vice versa. A primary goal of this meeting is to aid cross-fertilization between disciplines. To do this, the first half of the symposium will provide a foundation of basic tutorials on research technologies for the non-specialist. Each tutorial will focus on a specific model (e.g. mathematical models in epilepsy) or tool (e.g. source localization techniques in EEG). They will begin by covering the basics and then proceed to applications in epilepsy research, including potential advantages and pitfalls of the model or tool. The second half of the symposium will contain talks describing state-of-the-art research in each area.

Tools for Epilepsy Research: Tutorials & Updates

Program

<http://www.cinnresearch.org/events.html>

Thursday, August 6

Afternoon: 1:30 PM – 6:00 PM (PARALLEL SESSIONS)

- Tutorial 1 **Signal Analysis & Mathematical and Computational Models**
- 1:30 **Bill Lytton**, SUNY Downstate Medical Center – *Moderator*
Linking data analysis and simulation: multi-units to the proteome
- 2:30 **Marc Benayoun**, The University of Chicago
Mathematical Analysis of Neuronal Networks: Implications for Epilepsy
- Tutorial 2 **In vivo and in vitro Animal Models**
- 1:30 **Ed Dudek**, The University of Utah, Salt Lake City – *Moderator*
Issues and strategies for linking mechanistic electrophysiological experiments to acquired epilepsy in animal models
- 2:30 **Nino Ramirez**, Seattle Children’s Hospital
In vitro approaches to study epilepsy
- 3:30 Coffee & Tea**
- Tutorial 1 4:00 **Nicholas Anderson**, Cardinal Health, Neurocare
(Continued) *Automated analysis: opportunities and pitfalls*
- 5:00 **Frank Zanow**, ANT/eemagine Medical Imaging Solutions GmbH, Berlin, Germany
Localizing electrical brain activity from EEG and MEG
- Tutorial 2 4:00 **Dan Margoliash**, The University of Chicago
(Continued) *In vivo and non-traditional model approaches to epilepsy*
- 5:00 **Amber Martell**, The University of Chicago
In vitro recording from neocortex of pediatric patients: NMDA-induced oscillation

Poster session: 1:30 PM – 8:30 PM

7:00 Dinner

Friday, August 7

Morning: 8:00 AM – 11:00 AM

8:00 Breakfast Buffet

Tutorial 3 Genetic Models and Molecular Techniques

8:30 **Andrew Escayg**, Emory University School of Medicine – *Moderator*
An overview of the genetics of epilepsy

9:30 **Kathy Millen**, The University of Chicago
A primer in mouse genetics: Engineered and spontaneous epilepsy models

10:30 Coffee & Tea

Morning from 11:00 AM – 1:00 PM & Afternoon: 2:00 PM – 6:30 PM

Session Genetic Models and Molecular Techniques

11:00 **Bill Dobyns**, The University of Chicago – *Moderator*
The Developmental Circle: how developmental epilepsies (infantile spasms), mixed developmental encephalopathies (Rett-like), autism and birth defects are interconnected

12:00 **Renzo Guerrini**, The University of Firenze, Florence, Italy
Genetic malformations of cortical development: functional reorganization and epileptogenesis

1:00 Lunch

2:00 **Andrew Escayg**, Emory University School of Medicine
New insights into the role of sodium channels in epilepsy

3:00 **Miriam Meisler**, University of Michigan, Ann Arbor
Analysis of epilepsy mutations using induced pluripotent stem cells

4:00 Coffee & Tea

4:30 **Eric Marsh**, CHOP
Targeting Arx: A developmental epilepsy mouse model that also recapitulates the phenotype of human heterozygous females

5:30 **Allison Barth**, Carnegie Mellon University
A seizure-dependent BK channelopathy: identification of new targets for anticonvulsant therapies

Poster session: 1:30 PM – 8:30 PM

7:00 Dinner

Saturday, August 8

Morning: 8:00 AM – 1:00 PM

8:00 Breakfast Buffet

Session **In vivo and in vitro Animal Models**

8:30 **Kevin Staley**, Massachusetts General Hospital- *Moderator*
Organotypic slice cultures as a model of posttraumatic epileptogenesis

9:20 **Ed Dudek**, The University of Utah, Salt Lake City
Continuous electrographic recordings in animal models of progressive acquired epilepsy: temporal properties and possible mechanisms

10:10 Coffee & Tea

10:30 **Catherine Schevon**, Columbia University
Microdischarges: a potential biomarker of epileptogenic Neocortex

11:20 **Steve Schiff**, Penn State Center for Neural Engineering
Fusing experimental seizures with computational models – towards model based tracking and control of seizures

12:10 **John Beggs**, Indiana University, Bloomington
Using event size distributions to assess network excitability

1:00 Lunch

Afternoon: 2:00 PM – 5:00 PM

Session **Signal Analysis & Mathematical and Computational Models**

2:00 **John Ebersole**, The University of Chicago – *Moderator*
Comparative and Combined EEG/MEG Source Modeling in Focal Epilepsy

2:50 **Delphine Cosandier-Rimélé**, Bernstein Center for
Computational Neuroscience, Freiburg, Germany
*Computational approaches to modeling of epileptic activity - From meso-
to micro-scale models*

3:40 Coffee & Tea

4:00 **Bill Lytton**, SUNY Downstate Medical Center
Sic transit: transmission, translation and transformation

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of The University of Chicago Pritzker School of Medicine, Illinois Institute of Technology, and Center for Integrative Neuroscience and Neuroengineering Research. The University of Chicago Pritzker School of Medicine is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians. The University of Chicago Pritzker School of Medicine designates this educational activity for a maximum of **18.5 AMA PRA Category 1 Credits**[™]. Physicians should only claim credit commensurate with the extent of their participation in the activity.

Publication

The proceedings of this conference will be published in a special issue of the *Journal of Clinical Neurophysiology*.

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of The University of Chicago Pritzker School of Medicine, Illinois Institute of Technology, and Center for Integrative Neuroscience and Neuroengineering Research. The University of Chicago Pritzker School of Medicine is accredited by the **Accreditation Council for Continuing Medical Education (ACCME)** to provide continuing medical education for physicians. The University of Chicago Pritzker School of Medicine designates this educational activity for a maximum of **18.5 AMA PRA Category 1 CreditsTM**. Physicians should only claim credit commensurate with the extent of their participation in the activity. Continuing medical education accreditation is pending.

Abstract Submission Instructions

Provide your Abstract as a one page Word file with the following settings:

- . paper size: letter
- . top and bottom margins: 1''
- . left and right margins: 1.25''

Within this one page, you may embed JPG figures up to a total of a 5 MB file size.

The Abstract should contain:

- . title (font: Times New Roman 16pts)
- . author(s) and affiliation(s) (font: Times New Roman 10pts)
- . abstract text (font: Times New Roman 11pts)
- . reference list and acknowledgements, figure captions and tables (font: Times New Roman 10pts)

References in text: Berntson *et al* 1997; Clifford and Tarassenko 2005; Togo *et al* 2006. Use '*et al*' in case there are more than two authors.

References:

Pan J and Tompkins WJ. A real-time QRS detection algorithm. *IEEE Trans. Biomed. Eng.* 32: 230–236, 1985.

Press WH, Flannery BP, Teukolsky SA and Vetterling WT. *Numerical Recipes in C*, 2nd ed. Cambridge UK: Cambridge Univ. Press, 1992, pp. 575–584.

Please email your contribution before July 22, 2009 as an email attachment to Della Akres (dakres@bsd.uchicago.edu) and cc: Wim van Drongelen (wvandron@peds.bsd.uchicago.edu).

In your email, indicate (1) if you prefer oral or poster presentation and (2) if you would like to be considered for an invitation to contribute to the special issue of the *Journal of Clinical Neurophysiology*.

Registration

We look forward to seeing you in Chicago. There will be no cost for attendees from the Argonne National Laboratory, the Illinois Institute of Technology, the Rehabilitation Institute of Chicago, or the University of Chicago for this meeting; attendees from elsewhere will be charged a \$175 fee and students from elsewhere will be charged \$125. This fee includes coffee, breakfasts, lunches and dinners. There will be an additional \$15 fee for those who wish to receive Continuing Medical Education Credit.

If you plan to attend, go to <http://www.cinnresearch.org/symposiuminfo.html> to register for the event; the registration procedure is as follows:

Registration Category A

Individuals who do *not* wish to receive Continuing Medical Education Credit, but who *are* associated with the Argonne National Laboratory, the Illinois Institute of Technology, the Rehabilitation Institute of Chicago, or the University of Chicago, please register by sending an E-mail to dakres@bsd.uchicago.edu **prior to July 15** with the following information:

Name:
Institution:
Department:
E-mail address:

There is no fee for registering in Category A.

Registration Category B

Individuals who are *not* associated with the Argonne National Laboratory, the Illinois Institute of Technology, the Rehabilitation Institute of Chicago, or the University of Chicago must register for the symposium in this category.

Any individual who wishes CME credit should also register in this category. If you are affiliated with one of the sponsoring institutions, you have to pay only the \$15 CME fee.

Fill out the [on-line registration form](#). Please include the following information.

Name:
Institution (if applicable):
Street Address:
City:
State:
Phone:
E-mail: address:
Registration fee (\$175.00):
Student registration fee (\$125.00):
CME Certificate fee (\$15.00):
Total charges:

Please contact Wim van Drongelen if you have any questions.

Sincerely,

Scientific Committee

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