

IWSP7 Tentative Program

Including the overlapping Melbourne Epilepsy (ME@MBC'15) meeting.

Monday August 3 2015 – IWSP7 Educational Day

08:00-08:30 - Registration

08:30-10:00 – Session 1a – Introduction to Epilepsy

Educational Day Welcome 08:30

Levin Kuhlmann, University of Melbourne

Basic Epilepsy 08:35

Andreas Schulze-Bonhage, University of Freiburg

Brain Activity and Seizure Statistics in Epilepsy 09:15

Mark Cook & Philippa Karoly, University of Melbourne

08:30-10:00 – Session 1b – The Virtual Brain Tutorial Part 1

Timothée Proix, Aix Marseille Université

10:00-10:30 – Morning Tea Provided

10:30-12:00 – Session 2a – EEG analysis, Networks and Machine Learning

EEG analysis, time series analysis and networks 10:30

Klaus Lehnertz, University of Bonn

EEG analysis and Advanced networks 11:00

Hitten Zaveri, Yale University

Machine Learning and EEG analysis 11:30

Theoden Netoff, University of Minnesota

10:30-12:00 – Session 2b – The Virtual Brain Tutorial Part 2

Timothée Proix, Aix Marseille Université

12:00-13:00 – Lunch Provided

13:00-15:00 – Session 3a – Oscillations, Seizure Prediction, and Devices for Epilepsy

Normal and Pathological High Frequency Oscillations 13:00

Liset Menendez de la Prida, Instituto Cajal – CSIC

Introduction to Seizure Prediction 13:40

Catalina Alvarado-Rojas, Pontificia Universidad Javeriana

Current & Next Generation Devices for Epilepsy 14:20

Greg Worrell, Mayo Clinic

13:00-15:00 – Session 3b – IEEG Database Tutorial Part 1

Brian Litt, Zack Ives, Joost Wagenaar, University of Pennsylvania

15:00-15:30 – Afternoon Tea Provided

15:30-17:30 – Session 4a – Modelling and Engineering for Epilepsy

Keys and Challenges of modeling epileptiform behaviour 15:30

William Stacey, University of Michigan

Neural-field models of epileptic dynamics 16:10

Andre Peterson, University of Melbourne

Why Would a Seizure Prediction Investigator Need To Care About 16:50

Group Theory?

Steven Schiff, Pennsylvania State University

15:30-17:30 – Session 4b – IEEG Database Tutorial Part 2

Brian Litt, Zack Ives, Joost Wagenaar, University of Pennsylvania

17:30-18:30 – Mentoring Session
18:30-19:00 – Opening Networking Reception
19:00-21:00 – IWSP7 Poster Session

Tuesday August 4 2015 – IWSP7 day 1

08:00-09:00 - Registration

09:00-10:00 – Introduction: Goals and hot topics

Session Moderator: Mark Cook, University of Melbourne

Introductory Remarks/Welcome 09:00

Iven Mareels, Dean of Engineering, University of Melbourne

Goals and hot topics in epilepsy mechanisms, models, prediction and control
Mark Richardson, Kings College London 09:10

Panel positions:

Bjoern Schelter, University of Aberdeen 09:30

Bruce Gluckman, Pennsylvania State University 09:35

TBA 09:40

10:00-10:30 – Morning Tea Provided

10:30-12:30 – Advances in Seizure Prediction and Detection Part 1

*Session Moderators: David Grayden, University of Melbourne; William Stacey,
University of Michigan*

Forecasting seizures in dogs with naturally occurring epilepsy 10:30

Gregory Worrell, Mayo Clinic

Cross-frequency coupling and seizure prediction 11:00

Catalina Alvarado-Rojas, Pontificia Universidad Javeriana

Seizure prediction and the EPILEPSIAE project 11:30

Antonio Dourado, University of Coimbra

Mathematical characterization of epileptiform limbic events 12:00

Wytsse Wadman, University of Amsterdam

12:30-13:30 – Lunch Provided

13:30-15:00 – Computational Modelling of Epilepsy

Session Moderators: Anthony Burkitt & Andre Peterson, University of Melbourne

Modelling multiscale brain networks: seizure initiation, evolution and
prediction 13:30

John Terry, University of Exeter

Modelling of neuronal and ionic dynamics during ictogenesis 14:00

Piotr Suffczynski, University of Warsaw

Seizure spread in a virtual epileptic patient 14:30

Timothee Proix, Aix Marseille Université

15:00-15:30 – Afternoon Tea Provided

15:30-17:00 – Epilepsy Mechanisms and Neural Oscillations

Session Moderators: Liset Menendez de la Prida, Instituto Cajal – CSIC; Theoden Netoff,

<i>University of Minnesota</i>	
Cortical physiology and epilepsy	15:30
<i>Sydney Cash, Massachusetts General Hospital, Harvard Medical School</i>	
Experimental control of ictogenesis to identify proictal biomarkers	16:00
<i>William Stacey, University of Michigan</i>	
Post-malarial epilepsy - dynamics in an animal model	16:30
<i>Bruce Gluckman, Pennsylvania State University</i>	
17:00-18:00 – Split-groups: problems & solutions	
Co-ordinated by Organizing Committee	
18:30-21:30 – Conference Dinner for all registrants	
 Wednesday August 5 2015 – IWSP7 day 2	
08:30-09:30 – Databases and Contest developments	
<i>Session Moderators: Alan Lai & Tatiana Kameneva, University of Melbourne</i>	
Seizure prediction algorithm development and validation via kaggle.com	08:30
<i>Benjamin Brinkmann, Mayo Clinic</i>	
Kaggle competition seizure prediction algorithm	08:50
<i>Simone Bosshard, University of Queensland</i>	
Crowd sourcing and the IEEG database	09:10
<i>Brian Litt, University of Pennsylvania</i>	
09:30-10:00 – Morning Tea Provided	
10:00-12:00 – Imaging, Networks and Epilepsy	
<i>Session Moderators: Klaus Lehnertz, University of Bonn; Hitten Zaveri, Yale University</i>	
EEG-based imaging to localise seizure and high frequency activity	10:00
<i>Bin He, University of Minnesota</i>	
Multi-modal imaging of human epileptic zone and networks	10:30
<i>Louis Lemieux, University College London</i>	
Revealing a brain network endophenotype in families with idiopathic generalized epilepsy	11:30
<i>Wessel Woldman, University of Exeter</i>	
Regional and network relationship in the intracranial EEG and its second spectrum	12:30
<i>Rasesh Joshi, Yale University</i>	
12:00-13:00 – Lunch Provided	
13:00-14:30 – Advances in Seizure Prediction and Detection Part 2	
<i>Session Moderator: Gregory Worrell, Mayo Clinic; John Terry, University of Exeter</i>	
An extracerebral biosignal pattern for epileptic seizure detection	13:00
<i>Diana Cogan, University of Texas at Dallas</i>	
Cortical excitability measurement and seizure prediction utilizing electrical probing	13:30
<i>Farhad Goodarzy, University of Melbourne</i>	
Adaptation of the phase clustering index to the rat model of epilepsy	14:00
<i>Karin Somerlik-Fuchs, University of Freiburg</i>	

14:30-15:00 – Afternoon Tea Provided

15:00-16:30 – Model-Based Estimation and Control in Epilepsy

Session Moderators: Steven Schiff, Pennsylvania State University; Dean Freestone, University of Melbourne

Recent advances in data-based modelling and their role in epilepsy research 15:00

Bjoern Schelter, University of Aberdeen

Can the mathematics of networked oscillators explain the challenges in predicting epileptic seizures? 15:30

Elma O'Sullivan-Greene, University of Melbourne

Real-time automated EEG tracking of brain state parameters using neural field theory: Application to brain stability and seizures 16:00

Romesh Abeysuriya, University of Sydney

16:30-17:30 – Outcomes and Targets for the Seizure Prediction Community

Moderators: IWSP7 Organising Committee

Participants:

Theoden Netoff, University of Minnesota

Andreas Schulze-Bonhage, University of Freiburg

William Stacey, University of Michigan

Thursday August 6 2015 – IWSP7/ME@MBC'15 joint day

08:45-10:30 – Epilepsy: From DNA to multi-faceted disease

Session Moderator: Mark Cook, University of Melbourne

Welcome 08:45

TBA

Genetics and the individual-specific nature of epilepsy 09:00

Samuel Berkovic, University of Melbourne

Unification of spikes, seizures and spreading depression 09:30

Steven Schiff, Penn State University

Sources of functional heterogeneity in the cellular activity of hippocampal microcircuits in temporal lobe epilepsy 10:00

Liset Menendez de la Prida, Instituto Cajal – CSIC

10:30-11:00 – Morning Tea Provided

11:00-12:30 – Sudden Unexpected Death in Epilepsy (SUDEP)

Session Moderator: Anne McIntosh, Austin Health

Plenary: SUDEP Overview 11:00

Philippe Ryvlin, Lyon University

Genetics of SUDEP 11:45

Doug Crompton, Northern Health

Sudden unexpected death, epilepsy and familial cardiac pathology 12:00

Alana Eastaugh, Austin Health

Chronic epilepsy causing an acquired cardiac channelopathy – more than just HCN 12:15

Sakshi Singh, Royal Melbourne Hospital

12:30-13:30 – Lunch Provided

13:30-15:00 – Brain Stimulation and Monitoring

<i>Session Moderator: Brian Litt, University of Pennsylvania</i>	
Responsive seizure control and its clinical implications	13:30
<i>Martha Morrell, Stanford University, Neuropace</i>	
Anterior thalamic stimulation	14:00
<i>John Archer, Austin Health</i>	
Tracking seizure dynamics using data-driven neural-field modelling	14:15
<i>Dean Freestone, University of Melbourne</i>	
Implantable devices	14:30
<i>Mark Cook, University of Melbourne</i>	
Fit-bit epileptology	14:45
<i>Patrick Kwan, Royal Melbourne Hospital</i>	

15:00-15:30 – Afternoon Tea Provided

15:30-17:00 – Imaging

<i>Session Moderator: Sarah Wilson, University of Melbourne</i>	
Dynamic changes in the peri-ictal period	15:30
<i>Jennifer Walz, The Florey Institute of Neuroscience</i>	
Functional networks in focal epilepsy	15:45
<i>Mangor Pederson, Brain Research Institute</i>	
Autobiographical memory breakdown: using event-related ICA to study higher cognitive functions	16:00
<i>Chris Tailby, Epilepsy Research Centre</i>	
Networks in Lennox-Gastaut syndrome	16:15
<i>Aaron Warren, The Florey Institute of Neuroscience</i>	
White matter tract abnormalities in Periventricular Nodular Heterotopia	16:30
<i>Shawna Farquharson, Brain Research Institute</i>	
Simultaneous EEG-MEG in refractory focal epilepsy	16:45
<i>Chris Plummer, St. Vincent's Hospital Melbourne</i>	

17:00-20:00 – ME@MBC Networking Reception and Poster Session (Open to IWSP7 registrants)

Friday August 7 2015 – ME@MBC'15 day 2 (Open to IWSP7 registrants)

08:45-10:15 – Data Blitz: Students and Post-docs present

Session Moderator: Graeme Jackson, Brain Research Institute

10:15-10:45 – Morning Tea Provided

10:45-12:00 – Basic Science

<i>Session Moderator: Levin Kuhlmann, University of Melbourne</i>	
Epileptogenesis in the developing brain	10:45
<i>Bridget Semple, Royal Melbourne Hospital</i>	
Can a spider toxin fix Dravet syndrome?	11:00
<i>Kay Richards, The Florey Institute of Neuroscience</i>	

Human iPS cells as a model of genetic epilepsy <i>Snezana Maljevic, University of Melbourne</i>	11:15
<i>In vivo myelo-architecture using whole-brain diffusion MRI</i> <i>Fernando Calamante, Austin Health</i>	11:30
<i>Using diamonds to measure neuronal activity</i> <i>David Simpson, University of Melbourne</i>	11:45
Closing Remarks: <i>Levin Kuhlmann</i>	