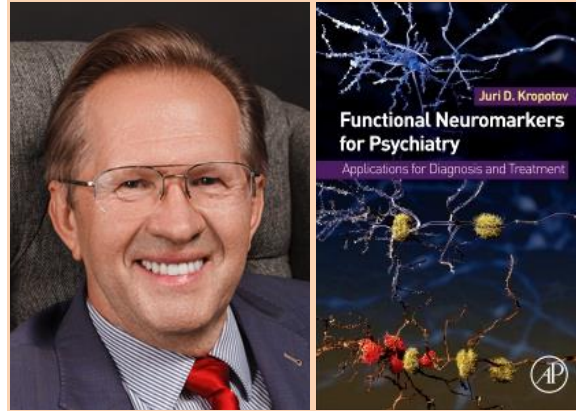


# Functional Neuromarkers

## in the Clinical practice of Mental Health

2017 Introductory and Advanced workshops and masterclasses  
with Prof. Yury Kropotov in Australia



### About the workshop

We are entering the new era of Personalised Medicine in Mental Health also called Precision Medicine. The foundation of this change is an emerging new paradigm of mental health based on neuroscience. Functional Neuromarkers will play a quintessential role in this development as the most reliable measurements of brain function. Workshops are aimed to give a comprehensive insight into advanced methods of brain diagnostics based on Quantitative EEG and Event Related Potentials.

### About the presenter:

Prof. Yury Kropotov is a world-renowned neuroscientist and a leading expert in the basic and applied neuroscience. The unique methodology developed in his labs at the Human Brain Institute in St Petersburg (Russia) and at Norwegian University of Science and Technology (Norway) allows a sophisticated analysis of brain electric activity in resting states and under task conditions. The methodology is described in his 2009 book by Academic Press, Elsevier "Quantitative EEG, event-related potentials and neurotherapy". These precise measurements of brain function can be used as Neuromarkers in the clinical context to evaluate brain health in different psychiatric and neurological disorders. The experience of translating this methodology into clinical practice is presented in his recently published book "**Functional Neuromarkers for Psychiatry**".

Yury's workshops are totally unique: the workshop will give you theoretical and practical experience of how to measure and analyse QEEG and ERPs using Human Brain Index Database with most advanced software available. Learning to use Neuromarkers is essential for psychiatrists, neurologists, psychologists, forensic and criminology experts, brain researchers and anyone involved in brain training and neuromodulation **practices**.

## Program details

### 2-day introductory workshop

## Application of functional Neuromarkers in diagnosis, prognosis and treatment of psychiatric conditions

**Dates 26-27th of April 2017, Location: Tweed Heads**

### Day 1

What are functional Neuromarkers: fMRI, PET, QEEG, event-related potentials (ERPs).  
Neuromodulation techniques of 21 century: neurofeedback, tDCS, TMS, DBS.  
Functional Neuromarkers in healthy brain: mechanisms and functional meaning.  
QEEG Neuromarkers in ADHD and Alzheimer disease.  
Neuromarkers of sensory processing: schizophrenia, autism.  
Neuromarkers of cognitive control: ADHD, schizophrenia, OCD.  
Application of ERPs for predicting response to psychostimulants in ADHD.  
Application of QEEG and ERPs for constructing protocols of neuromodulation.  
Application of QEEG and ERPs for monitoring the results of treatment

### Day2

Demonstration of software and equipment for recording EEG and ERPs  
Practice: How to record a good quality EEG and ERP's

Participants will learn basics of EEG recording software and hardware, acquire practical skills of recording quality EEG and ERPs by practicing in pairs.

Methods of EEG recording and montaging  
Recording EEG in resting state  
Recording evoked potentials in behavioural paradigms

Learning to use EEG data analysis software, including WinEEG a very popular tools for EEG analysis.  
Analysing files from the HBI database & EEG files recorded during the workshop.  
Artifact correction, automatic spike detection, Spectral analysis

**Register now at the early bird rate at [www.braininstitute.com.au](http://www.braininstitute.com.au)**

### 3-day advanced workshop

## Functional Neuromarkers in Mental Health

**Dates: 28-30<sup>th</sup> of April 2017, Location: Tweed Heads**

There were request from practitioners previously trained by Prof. Jury Kropotov wanting to do their own analysis for a more advanced hands-on training in EEG and ERPs analysis. So, this year Prof. Juri Kropotov will provide such new workshop. Here is a brief program:

Day 1.

Morning. QEEG analysis:

1. Slow and infra-slow cortical potentials.
2. Alpha, beta and theta rhythms: neuronal mechanisms.
3. Spectral analysis.
4. Coherence.
5. Inverse solution. LORETA.
6. Event related desynchronization/synchronization (ERD/ERS).
7. Independent component analysis.
8. Artifacts and their correction.
9. Normative databases.

Evening. Learning WinEEG software.

1. Practicing artifact correction
2. Computing EEG spectra,
3. Comparison to the HBI database.
4. Looking at QEEG subtypes of ADHD.

## Day 2.

Morning: Analysis of event-related potentials.

1. Sensory and attention systems in healthy and diseased brain.
2. Executive system in healthy brain and its impairments in ADHD, schizophrenia and OCD.
3. Affective system: signs of anxiety.
4. Memory systems.

Evening. Recording and analyzing ERPs.

1. Analysis of behavioral data.
2. ERP waves: N1, N170, P2, N2 NOGO, P3NOGO.
3. ERP latent components: category discrimination, comparison to working memory, action inhibition, conflict detection.
4. Examples of **ERPs in** ADHD, schizophrenia and OCD.

## Day 3.

Morning. Using QEEG/ERP analysis for constructing protocols of neurotherapy.

1. Principles of neurofeedback.
2. Constructing protocols of neurofeedback.
3. Principles of tDCS.
4. Protocols of tDCS for different brain dysfunctions.
5. Using QEEG/ERP analysis for monitoring the results of neurotherapy.

Evening. Making a report on QEEG/ERP assessment.

1. Preprocessing.
2. Computing spectra, asymmetry, ratios.
3. Comparison to the database: conclusions.
4. Computing ERPs and comparison to the database.
5. Behavioral data.
6. Comparison ERP components.
7. Conclusion and recommendations.

### Read what participants and experts say about methodology taught by Prof. Yury Kropotov

*"As a veteran researcher of International standing, Professor Yuri Kropotov brings a wealth of integrated knowledge about brain function and signalling to his presentations. His workshops are both theoretically and practically sound and are a "must-do" for clinical practitioners wanting practical markers to assist diagnosis and target treatment response. I also recommend this knowledge as being especially useful for researchers in the field of neuroscience."*

**Dr Stephanie Fryer-Williams. Chief Researcher, Mental Health Biomarker Project**

*"...Thanks for organising the workshop. I thought it was a great to have a presenter of such calibre... Every neuro-therapist needs to understand the tremendous contribution that biomarkers from ERP analysis can add to assessing mental health conditions. As a scientist practitioner I am fascinated by such technologies and it is a rare privilege to be able to be taught by one of the world's foremost authorities. Having attended several of Yury's past workshops, I can recommend the value of learning from this master scientist. His workshops are informative, challenging, and as long as you understand Russian humour, funny!"*

**Dr. Phil Watts, Clinical and Forensic Psychologist (see Dr Watts' website about his expertise: <http://www.drphil.com.au>)**

*"Professor Yuri Kropotov is a world research leader into brain electrical fields and the significance of these fields to the understanding and healing of many psychological disorders. Professor Kropotov is well known and highly respected for his recent seminal text on quantitative EEG, event-related potentials and*

*neurotherapy, the first book to comprehensively address such matters. With ongoing cutting edge work, he continues to add importantly to the emerging zeitgeist that is replacing conventional views on the functioning of the mind. His work is essential material for those interested in the field of neurotherapy."*

**C. Richard Clark, BA (Hons), PhD, MAPS, BCN, FASSA, Joint Clinical Director, Brain Health Clinics, Professor of Psychology, Flinders University**

*"Professor Jury Kropotov's unique methodology for the acquisition and analysis of QEEG and ERP data has provided our clinicians with a valuable tool to measure brain functioning in clients and to use this information to plan their treatment and to evaluate treatment outcomes. In addition, having such a powerful methodology for ERP analysis has provided us with the foundation to search for functional neuromarkers for PTSD resulting from refugee trauma. STARTTS is immensely grateful for the opportunity to collaborate with Professor Kropotov on the analysis of ERP data collected in our clinical work with refugee clients exposed to torture and trauma. We count ourselves fortunate to learn from a world leader in this field whose expertise continues to inform our clinical work and research."*

**Mirjana Askovic, Neurofeedback Program Team Leader, NSW Service for the Treatment and Rehabilitation of Torture and Trauma Survivors**

*".. Thank you for giving me the amazing opportunity to study with Prof. Jury Kropotov. For such a towering intellect and eminent figure in his field he made the information surprisingly accessible and enjoyable. I am very grateful to you for the experience..."*

**Jenny Hardwidge, Pharmacist**

*"After having attended 3 workshops with Prof. Kropotov I continue to be amazed at his depth of knowledge in the world of neuroscience. His method of QEEG and ERP acquisition and analysis has been extremely useful in both my clinical work and PhD research. Prof. Kropotov has definitely left his mark on the world of EEG biomarkers in psychiatric disorders – attendance at his workshops is a must for anyone interested in objective measurement in psychology and/or EEG-guided neurotherapy".*

**Trevor Brown, BA (Hons), PhD Candidate, Director, Positive Brain Training. Neurotherapy, Listen and Learn Centre.**

*"As a research collaborator, I count myself deeply fortunate to have worked under the guidance of Professor Yury Kropotov, and have benefitted immeasurably from his expert theoretical and technical understanding of the ERP paradigm that he continues to pioneer as a potential tool for measuring neuro-cognitive functioning. Having participated in two of his multi-day workshops, I then consulted individually with Dr Kropotov, and in three indispensable hours we were able to analyse and interpret data from a complex set of clinical records to deliver significant findings to my organisation. These findings have led to an article currently under peer-review, and the methodological knowledge that I gained through the process was sufficient to enable me to instruct other staff undertaking related analyses".*

**Russell Downham, PhD Philosophy, MA Clin. Psych (research thesis)**