

# Advanced Workshop: Quantitative EEG and Evoked Potentials as Basis for Successful Neurotherapy

## *In Theory and Practice: Five-Day Workshop*

Hotel Schweizerhof, 7078 Lenzerheide, Switzerland

### With Prof. Jury D. Kropotov

*Director of the Laboratory of the Institute of the Human Brain,  
of the Russian Academy of Sciences, St. Petersburg, Russia;  
USSR State Prize Winner.*

*Professor II of the Norwegian University of Science and  
Technology, Trondheim, Norway.*



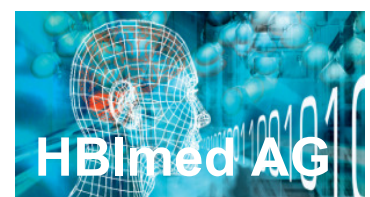
### Course Description:

The goal of the workshop is to teach attendees how to improve their diagnostic and treatment tools by using the newly emerged technology of Quantitative EEG, event related potentials and neurotherapy. Four brain disorders (ADHD, schizophrenia, depression and Alzheimer's disease) will be analyzed. Effects of different pharmacological agents will be considered.

The attendees will learn how to write their own reports, how to write a summary of the report and how to suggest a neurofeedback/tDCS protocol on the basis of QEEG/ERP analysis.

The course location is a beautiful resort, in a winter sports area.

- Each day will consist of two parts:
  - *Morning:* Lectures on theory
  - *Afternoon:* Practicing with software on EEG files taken from the HBI reference database as well on the EEG files that were brought by attendees.
- The attendees are required to bring laptops with them. At the workshop the attendees will be supplied with the HBI software and EEG files from the HBI (Human Brain Index) reference database.
- Comprehensive course material will be provided.



# Course Schedule

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## Day 1      Attention Deficit Disorder

### *Morning: Theoretical part*

#### Topics:

- **Description of behavior:** Executive operations, symptoms of ADHD in DSM-IV and ICD-10
- **Genetic and environmental factors:** Complex genetic disorder, environmental risk factors, comorbidity
- **Imaging correlates:** PET and MRI, QEEG. Theta beta ratio as inattention index
- **QEEG endophenotypes of ADHD**
- **ERPs correlates:** Selective attention, working memory, engagement operation, response inhibition, monitoring operation
- **ERP endophenotypes:** Decrease of response suppression and visual related components
- **Dopamine hypothesis of ADHD:** Increased level of DAT, noradrenaline transporter
- **Other diagnostic tools for ADHD**
- **Treatment:** Psychostimulants, neurofeedback, beta enhancement/theta suppression protocol, working memory tools, relative beta training protocol, normalization of executive ERPs components, Transcranial Direct Current Stimulation

### *Afternoon: Practicum*

**Examples of EEG records in eyes open, eyes closed and two stimulus GO/NOGO tasks taken from a group of ADHD children and norms will be given to the attendees. The task will be to analyze the cases by**

- 1) deartifacting,
- 2) computing spectra and ERPs,
- 3) comparing the data with the HBI reference database,
- 4) comparing behavioral parameters to the reference data,
- 5) attributing the whole set of data to an ADHD endophenotype and
- 6) constructing a specific treatment protocol for the patient

**Attendees are also encouraged to bring their own cases to the class in order to analyze them in front of the class.**

## Day 2      Schizophrenia

### *Morning: Theoretical part*

#### Topics:

- **Description of behavior:** Involvement of the sensory, executive and affective systems, positive and negative symptoms, dysfunction of the executive system
- **Genetic and environmental factors:** Multiple genes are involved, environmental risk factors
- **Imaging correlates:** MRI, QEEG, ERPs correlates, mismatch negativity as an indicator for schizophrenia? CNV and PINF (post imperative negative fluctuation), a lack of anteriorization of the N1 positive wave in the GONOGO paradigm, engagement operation, monitoring operation
- **Dopamine hypothesis of schizophrenia:** excess of striatal dopamine receptors, neural net model
- **Other diagnostic tools**
- **Treatment:** Antipsychotic agents, electroconvulsive therapy, psychosurgery, neurofeedback

### *Afternoon: Practicum*

**Examples of EEG records in eyes open, eyes closed and two stimulus GO/NOGO tasks taken from a group of schizophrenic patients and norms will be given to the attendees. The task will be to analyze the cases by**

- 1) deartifacting,
- 2) computing spectra and ERPs,
- 3) comparing the data to the HBI reference database,
- 4) comparing behavioral parameters to the reference data,
- 5) attributing the whole set of data to the schizophrenic or normal groups and
- 6) constructing a specific treatment protocol for the patient

**Attendees are also encouraged to bring their own cases to the class in order to analyze them in front of the class.**

## Day 3      Depression

### *Morning: Theoretical part*

#### Topics:

- **Description of behavior:** History, symptoms, subtyping depression, heritability, need for objective diagnostic system
- **Imaging correlates:** PET, MRI, Spectra asymmetry, ERP asymmetry QEEG/ERPs assessment in a depressed patient, QEEG predictors of response to antidepressants
- **Neuronal model:** Monoamine hypothesis of depression, brain circuitry of depressed mood
- **Other diagnostic tools**
- **Treatment:** Cognitive behavioral therapy, ECT and psychosurgery, antidepressants, TMS, neurofeedback

*Afternoon*

**Social event**

## **Day 4      Alzheimer's Disease**

*Morning: Theoretical part*

**Topics:**

**Description of behavior:** Symptoms

**Mediators:** Association with cholinergic/GABA septal-hippocampal circuits, cholinergic hypothesis of Alzheimer's disease

**Neural net model:** Theta bursts in healthy brain, Increase of spontaneous theta activity in diseased brain

**Other diagnostic tools**

**Imaging correlates:** QEEG, ERPs

**Treatment:** Acetylcholinesterase inhibitors, neurofeedback

*Afternoon: Practicum*

**Topics:**

**Examples of EEG records in eyes open, eyes closed and two stimulus GO/NOGO tasks taken from a group of patients with Alzheimer's disease and norms will be given to the attendees. The task will be to analyze the cases by**

- 1) deartifacting,
- 2) computing spectra and ERPs,
- 3) comparing the data to the HBI reference database,
- 4) comparing behavioral parameters to the reference data,
- 5) attributing the whole set of data to the Alzheimer's or normal groups and
- 6) constructing a specific treatment protocol for the patient.

**Attendees are also encouraged to bring their own cases to the class in order to analyze them in front of the class.**

## Day 5      Pharmo-QEEG/ERP

### *Morning: Theoretical part*

#### **Topics:**

- **Effect of mediators on the brain systems** (executive, sensory, affective and memory)
- **Examples of effects of different drugs** (Concerta, Straterra,...) on spectra and event related potentials
- **How to construct your own reports.** The steps of constructing your own report will be described
- **How to write a summary of the report** What is important and what is irrelevant
- **How to suggest a neurofeedback/tDCS protocol on the basis of a report**  
Bulldozer principle of neurofeedback and principles of tDCS

### *Afternoon: Practicum and test*

**An example of EEG records in eyes open, eyes closed and a task condition of one of the shown patient groups will be given to the attendees. The task will be to make a report, summary and recommendations for therapy. Attendees are also encouraged to bring their own cases to the class in order to make a report.**

#### **About the lecturer:**

Prof. Jury Kropotov is a leading and worldwide renowned scientist in the field of quantitative EEG, evoked potentials, neurophysiology and neurotherapy. He is Director of the laboratory of the Institute of the Human Brain of the Russian Academy of Sciences, St. Petersburg. Prof Kropotov is also Professor II of the Norwegian University of Science and Technology, Trondheim, Norway

#### **About HBImed AG:**

HBImed AG is a leading provider of diagnostic tools for mental disorders. It operates the HBI database and provides QEEG report services. HBImed AG is located in Switzerland. Prof. Kropotov is one of the directors of HBImed AG.

#### **About EEG Info:**

EEG Info is a global provider of educational services, equipment, supplies and support to mental health professionals. EEG Info supports HBImed in various aspects such as courses.

## Organizational Notices:

**Date:** 2010, November, 24<sup>th</sup>-28<sup>th</sup>

**Location:** Hotel Schweizerhof, Voa Principala 39, 7078 Lenzerheide/Switzerland  
[www.schweizerhof-lenzerheide.ch](http://www.schweizerhof-lenzerheide.ch)

**Notice:**

The hotel is located in a wonderful landscape in a winter sports area.

**Language:** The course will be held in English.

**Equipment:** Please bring along your Laptop. Be sure to have an adapter for the German system. The QEEG equipment, caps, electrodes, supplies, etc. will be supplied by us. If you already have compatible QEEG equipment, you are welcome to bring it along. We offer as complementary service to check your system and update it where necessary.

**Prices:**

Entire course per person € 1290.-

„Partner rate“: 2 persons & more € 1180.- / person

„Early bird rate“: sign up before August 10th: € 1180.-

„Partner & early bird“: for 2nd person € 1180.-

Single day, per day and person € 270.-

Included in the course fee is:

- Lunch for all five days
- Snacks and beverages in breaks, unlimited coffee
- Course material (*booklet with all slides as well as CD*)

**Accommodation:**

For the duration of the course we have reserved a limited contingent of single rooms at a special price of CHF 240.00 Euro per person and night, including breakfast and dinner. Please let us know if you would like us to book a room for you. **Booking the room with us is possible only as long as the contingent lasts.**

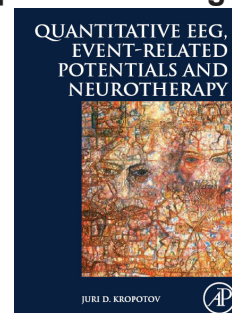
In case you are interested in a double room, please contact us in time. The price for a double bed room, including breakfast and dinner is CHF 220.00 **per person and night.**

**Preparation:**

For maximum learning efficiency, we strongly recommend to read the book “Quantitative EEG, Event Related Potentials and Neurotherapy” by Jury D. Kropotov prior to the course.

ISBN 978-0123745125, EUR 54.- excl. VAT

The book is available at EEG Info ([www.eeginfo.ch](http://www.eeginfo.ch))



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Hotel Schweizerhof, 7078 Lenzerheide, Switzerland

**I do sign up bindingly for this workshop:**

\_\_\_ whole seminar

\_\_\_ single days on \_\_\_\_\_

1. Attendee

Name/First Name: \_\_\_\_\_

Street: \_\_\_\_\_

ZIP Code/Place/Country: \_\_\_\_\_

2. Attendee

Name/First Name: \_\_\_\_\_

Street: \_\_\_\_\_

ZIP Code/Place/Country: \_\_\_\_\_

3. Attendee

Name/First Name: \_\_\_\_\_

Street: \_\_\_\_\_

ZIP Code/Place/Country: \_\_\_\_\_

My email address: \_\_\_\_\_

I will bring a laptop with the following operating system: \_\_\_\_\_

(date and signature on next page after the fine print)

Please make sure to bring along a laptop and to bring a suitable connector plug/adapter for the **Swiss** system!

We have a limited contingent of single bedrooms at the course hotel.  
Price per single room is CHF 240.00 per person and night, including breakfast and dinner.

**Booking the room with us is only possible as long as our contingent lasts!**

(Please see chapter „Accommodation“ of the course description).

Yes, please book a room for me \_\_\_\_ Number of single rooms \_\_\_\_

Arrival at \_\_\_\_\_ 2010 to Departure at \_\_\_\_\_ 2010

Number of nights \_\_\_\_

No, I don't need a room \_\_\_\_

Contact us if you need a double room or have special requests.

Cancellation/Refund Policy:

1. Course:

We try to offer high quality and convenience to you. As a part of that, we want to allow for your maximum flexibility. Therefore, cancellations made until 30 days prior to the course are free of cost. Cancellations made within 7 to 30 days prior to the course will be subject to a fee of 50% of the course fee. If the cancellation is made within the 7-day period prior to the course, the entire course fee will have to be paid.

2. Hotel room:

In case you requested a hotel room, the cancellation policy is: until 90 days prior to the course: no cost; 89 until 40 days prior to the course: 50% of the room fee is to be paid, 39 until 10 days prior to the course: 90% of the room fee is to be paid, after that, full (all in case the hotel cannot fill the room otherwise).

I sign up for the course, read the cancellation policy and agree with it.

Date and signature: \_\_\_\_\_

Mail this form to:	Or fax:	Or eMail:
HBImed AG Husenstrasse 57 CH-9533 Kirchberg Switzerland	+41 (71) 931 46 17 or +49 (9131) 532 558	course@hbimed.com