



**SOCIETY FOR THE
ADVANCEMENT
OF BRAIN ANALYSIS
13th Annual Conference
MAY 7-10, 2014**

&



**BRAIN SCIENCE
INTERNATIONAL
MAY 5-7, 2014**

**2014 Conference
and Workshops**

Avalon, Catalina Island, California

May 5-7 BSI Workshops

May 7-10 SABA Meeting

**Catalina Canyon Resort
888 Country Club Drive**



MONDAY, MAY 5 - WEDNESDAY MAY 7

(Refer to course outlines for exact times)

**BSI PROFESSIONAL QEEG
PROGRAM Day 1**
Jay Gunkelman, QEEGD

**BSI BCIA NEUROTHERAPY
CERTIFICATION PROGRAM**
Day 1
Cynthia Kerson, PhD
Barry Sterman, PhD

**FUNCTIONAL NEUROMARKERS
IN PSYCHIATRY AND
NEUROLOGY: CLINICAL
APPLICATIONS FOR
DIAGNOSIS, PROGNOSIS AND
TREATMENT**
Day 1
Juri Kropotov, Prof.



SABA BEGINS WEDNESDAY EVENING

6:00-7:30
**CHAMPAGNE WELCOME
RECEPTION**
Barry Sterman, PhD
Cynthia Kerson, PhD
Ali Hashemian, PhD - FDA
CLEARS THE WAY

SCHEDULE THURSDAY, MAY 8

9:00-10:30
**SMR NEUROFEEDBACK FOR
IMPROVING SLEEP AND
MEMORY - A DOUBLE-BLIND
STUDY IN PRIMARY INSOMNIA**
Manuel Schabus, Prof

11:00-12:30
**METHODOLOGICAL ISSUES:
WHAT ARE WE ATTEMPTING
TO DO?**
Barry Sterman, PhD

12:30-2:30
LUNCH on your own - see page 11 for
local options

2:30-4:00
**A BRAIN SYSTEMS PERSPECTIVE
FOR EVALUATING DIFFERENCES
IN BRAIN ELECTRICAL
ACTIVITY USING NORMATIVE
AND NON-NORMATIVE
APPROACHES**
Don DuRousseau, AB, MBA

4:30-6:00
PANEL
METHODOLOGY
Barry Sterman, PhD
Manuel Schabus, Prof
Eran Zaidel, PhD
Don DuRousseau, AB, MBA

DINNER on your own - see page 11
for local options

FRIDAY, MAY 9

9:00-10:30
**FUNCTIONAL NEUROMARKERS
IN PSYCHIATRY AND
NEUROLOGY: CLINICAL
APPLICATIONS FOR DIAGNOSIS,
PROGNOSIS AND TREATMENT**
Juri Kropotov, Prof

11:00-12:30
**ABNORMAL INFORMATION
PROCESSING AND
CONVERGENT VERSUS CORE
DEFICIT EFFECTS IN ADHD**
Sigi Hale, PhD

12:30 - 2:30
LUNCH on your own - see page 11 for
local options

2:30-4:00
**USING EEG BIOMARKERS
IN ADHD FOR DIAGNOSIS
AND TREATMENT RESPONSE
MONITORING**
Sandra Loo, PhD

4:30-6:00
PANEL
NEUROTHERAPY AND ADHD
Sandra Loo, PhD
Teresa Bailey, PhD
Lynda, PhD & Michael, MD
Thompson
Sigi Hale, PhD

SATURDAY, MAY 10

9:30-10:30
**NEUROFEEDBACK AS A
TREATMENT MODALITY FOR
SEIZURE DISORDERS**
Barry Sterman, PhD

10:30-12:00
**CAN WE TEACH OUR BRAIN
TO ELIMINATE SEIZURE
ACTIVITY?**

Rivi Sela

12:30-2:00

PANEL
**NEUROTHERAPY AND
EPILEPSY**

Rivi Sela

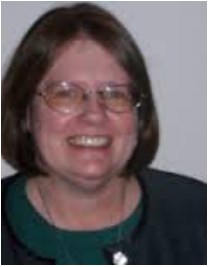
Barry Sterman, PhD

Robert Turner, MD

Jay Gunkelman, QEEGD

S P E A K E R S

(in alphabetical order)



Teresa Bailey, PhD

Psychologist

Los Altos, California, USA

Dr. Bailey is a licensed psychologist with specialization training in both neuropsychology and psychotherapy. She holds doctorates in both clinical psychology and history. In addition she has post-doctoral specialization certificates in neuropsychology, psychotherapy, and qEEG-guided neurofeedback.



Don DuRousseau, AB, MBA

Director Peak Neurotraining Solutions

Sterling, Virginia, USA

Don is a cognitive neuroscientist with 25 years of brain research experience in electroencephalography (EEG) and brain-machine systems. Don is Executive Director of PEAK Neurotraining Solutions where he applies more than 10 years clinical experience in cognitive assessment and neurofeedback therapy. Don was educated in neuroscience at The University of California, and in business and public policy at The George Washington University. Don has been a Principal Investigator for the National Institutes of Mental Health, the Defense Advanced Research Projects Agency and the Department of Homeland Security Science and Technology Directorate, and has patented several neuroimaging technologies. His current interest is in promoting the development of new policies spanning the ethical use of neurotechnologies in clinical treatment and over-the-counter applications.



Jay Gunkelman, QEEGD

Chief Scientific Officer

Brain Science International

Pleasanton, California, USA

Jay Gunkelman, QEEG Diplomate, is recognized as one of the top leaders in the field of EEG and QEEG, and has processed over 500,000 EEGs since 1972. He has served as president of The International Society for Neurofeedback and Research, as well as a board member and treasurer of the Association for Applied Psychophysiology and Biofeedback and is a past-president of the Biofeedback Society of California. Jay was the first EEG technologist to be certified in QEEG (1996) and was granted Diplomate status in 2002. He has conducted, published or participated in hundreds of research papers, articles, books and meetings internationally. He continues to lecture on EEG/QEEG at neuroscience meetings worldwide. He has co-authored the textbook on EEG artifacting (2001). Jay remains busy with current projects and publications related to his seminal paper on EEG endophenotypes (2005, *Clinical Electroencephalography*). He is co-founder and Chief Science Officer of Brain Science International and is a popular lecturer worldwide on the topic of QEEG and phenotype identification of neurological disorders.



Sigi Hale, PhD

Assistance Professor in residence

UCLA Semel Institute, Dept of Psychiatry

Los Angeles, California, USA

Sigi Hale obtained a Ph.D. from the department of Neuroscience at UCLA and is currently a post-doctoral fellow at the UCLA Neuropsychiatric Institute. His research explores the implications of human beings possessing two distinct and specialized brain hemispheres. In particular, he studies how atypical

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cerebral asymmetry contributes to the diversity of intelligence styles among human beings as well as psychopathology and has published several peer-reviewed papers on this topic.

His research includes working with MRI, fMRI and EEG brain imaging technologies, as well as several years of experience designing, administering, and analyzing neuropsych cognitive measures.

His most recent project is using neuropsych and EEG based measures of brain laterality to assess whether atypical cerebral asymmetry underlies core cognitive and behavioral symptoms in ADHD.



Ali Hashemian, PhD

*Founder and CEO
Brain Science International
Pleasanton, California USA*

Ali Hashemian is the co-founder and CEO of Brain Science International as well as the CEO of American College of Behavioral Medicine, Inc. which owns and operates the five Attention and Achievement Centers located in the San Francisco - San Jose metropolitan areas. Under his supervision, Attention and Achievement Center has provided diagnostic evaluations, QEEG recording and interpretation and non-medication based interventions including neurofeedback (EEG neurofeedback), Auditory Integration Training, Sensory Integration training and coaching to thousands of clients over the past decade. He has completed the Hearing Conservation Certification program at Portland State University and also has completed the Professional Program in Neuropsychological Assessment from the University of California at Berkeley. He has received several hundred hours of continuing education and training in child and adolescent psychiatric disorders from Harvard Medical School, and has completed the intensive course in Repetitive Transcranial Magnetic Stimulation at Harvard. He is a Certified Berard Practitioner, as well as a Certified Solisten (by Tomatis) System provider and an Associate of the International Association of Registered Certified Tomatis Consultants.



Cynthia Kerson, PhD

*Director of Education, Brain Science International
Executive Director, ISNR Research Foundation
Adjunct Professor, Dept of Clinical Psychology, Saybrook University
San Rafael, CA USA*

Cynthia Kerson is the director of education for BSI. Additionally she is the clinical director of Marin Biofeedback, where she specializes in neurofeedback training for learning disabilities, pain, depression and anxiety. She is also currently the executive director of the ISNR Research Foundation, where she oversees all granted and sanctioned programs for them. Dr. Kerson has published several papers and articles, is a mentor for BCIA and a member of AAPB, SABA and ISNR. She frequently presents at meetings on neurofeedback and the research projects of the ISNR Research Foundation. She served as president of the Biofeedback Society of California twice, is the president of the AAPB Neurofeedback Division and serves on their Board of Directors. In addition to her more academic pursuits, she frequently consults with the media, contributing her expertise to television, including serving as the 'EEG expert' for the popular program MythBusters.



Juri Kropotov, Prof

*Laboratory Director
Institute of Human Brain
Russian Academy of Sciences
St. Petersburg, RUSSIA*

Juri Kropotov, Ph.D. has earned three doctorates: in theoretical physics, in philosophy and in neurophysiology. From 1970 to 1990, he practiced at the psychiatric clinics of the Institute of Experimental Medicine and Institute of the Human Brain at the Russian Academy of Sciences in St. Petersburg. His work with psychiatric patients included electrode implantation for neurological research, evaluation, diagnosis and therapy. For this research, in 1985 he

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was awarded the country's highest scientific award -- the USSR State Prize. His scientific interests are now focused on quantitative EEG and normative data bases, event-related potentials (ERPs), neurotherapy (neurofeedback, tDCS, DBS), QEEG/ERP markers of psychiatric and neurological disorders. In 2009, his book, entitled *Quantitative EEG: Event-Related Potentials and Neurotherapy* was published. Upon publication, he received the award for the year's most significant publication in the field of neurofeedback from the Foundation for Neurofeedback and Applied Neuroscience. In 2009, he was also awarded the Copernicus Prize, an award presented by the Polish Neuropsychological Society. Dr. Kropotov has published more than 200 papers and authored 9 books. He is currently the Laboratory Director at the Institute of the Human Brain at the Russian Academy of Sciences (St. Petersburg) and a professor at the Institute of Psychology at the Norwegian University for Science and Technology (Trondheim).



Sandra Loo, PhD

*Associate Professor
Division of Child Psychiatry,
Center for Neurobehavioral Genetics, UCLA
Los Angeles, California USA*

Dr. Sandra Loo is an Associate Professor within the Division of Child Psychiatry and Center for Neurobehavioral Genetics. Her research centers on the gene-brain-behavior pathways evident in childhood psychiatric disorders (such as ADHD, Tourette's Syndrome, OCD and Autism) and translation of this work to improve treatments for these disorders. In addition to these research interests, Dr. Loo (with Dr. Christina Palmer) coordinates the core training course for the Center entitled 'Phenotyping Complex Traits.' This course links diverse approaches of examining phenotypic expression in genetic research to map out an integrative system of understanding the basis of complex human behavior. Dr. Loo is a licensed clinical psychologist and directs the predoctoral internship track in pediatric neuropsychology

in the Medical Psychology Assessment Center. She specializes in neuropsychological assessment of childhood psychiatric disorders, such as ADHD and dyslexia. Before coming to UCLA, she was director of two outpatient clinics specializing in the diagnostic and neuro-cognitive assessment of attention and learning disorders at the University of Colorado Health Sciences Center and the University of Massachusetts, where she worked with Dr. Russell Barkley.



Manuel Schabus, Prof

*Associate Professor
University of Salzburg, Austria
Laboratory for Sleep, Cognition and Consciousness Research
Salzburg, AUSTRIA*

Dr. Schabus is Associate Professor at the University of Salzburg (Austria) and is head of the "Laboratory for Sleep, Cognition and Consciousness" research. Mr. Schabus habilitated on "Residual Cognitive Processing in Altered States of Consciousness" (covering sleep as well as coma related topics) and has expertise in Cognitive Neuroscience as well as Clinical Psychology (being client-centred psychotherapist). With regards to methodological knowledge Mr. Schabus is specialized in oscillatory EEG research, but is also familiar with fMRI and simultaneous EEG/fMRI from his postdoctoral time at the Cyclotron Research Centre (Liège, Belgium). At present Mr. Schabus is working on a comprehensive double-blind study on SMR neurofeedback in primary insomnia and is conducting research on sleep-dependent memory consolidation. Altogether Mr. Schabus published over 50 articles in peer reviewed journals (h-index: 27).



Rivi Sela

*CEO Brain Games-Isreal
Airport City, ISREAL*

Rivi Sela is a co-founder and CEO of BrainGames- Israel clinics which, operates in the last 6 years, two clinics

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in Israel. The clinics specialize in treating ADHD, Epilepsy and Autism. Under her supervision, the centers have provided diagnostic evaluations, QEEG recording and interpretation and non-medication interventions. Over the last 6 years the clinics treated hundreds of children & adults.

Before that, Rivi has served as the Chief Technology director of “Sheba”, the largest medical center in Israel and specialized in developing & implementing of clinical technologies, hardware and software components collaborated with the leading companies from around the globe.



Barry Sterman, PhD

*Professor Emeritus
Geffen School of Medicine
Neurobiology and Psychology Dept, UCLA
Los Angeles, California, USA*

M. Barry Sterman, Ph.D. is Professor Emeritus, Departments of Neurobiology and Biobehavioral Psychiatry, UCLA. His seminal work in the operant conditioning of cats’ brains in the late 1960s paved the course for neuromodulation practices today. He has written over 100 peer-reviewed articles, over 30 book chapters and 6 books in the area of operant conditioning in animals and humans, specializing in epileptiform and sleep brain behaviors. Dr. Sterman is a frequent lecturer and sought-after speaker on the topic of neuromodulation.



**Lynda & Michael
Thompson**

*Directors, ADD Centre and the Biofeedback Institute of Toronto
Toronto, CANADA*

Lynda Thompson, Ph.D. is a psychologist who has taught, provided clinical and school psychology and owned learning centers. She became executive director of The ADD Centre in Toronto in 1993 after discovering the world of neurofeedback and deciding to specialize in that intervention. Her doctoral dissertation

(1979) dealt with hyperactive children treated with methylphenidate. She is co-author with William Sears of *The A.D.D. Book: New Understandings, New Approaches to Parenting Your Child*. Since beginning a centre for biofeedback she has published 9 book chapters, and 14 journal articles with an emphasis on ADHD, Asperger’s syndrome, seizure disorders and stress management. She takes an active part in the main organizations concerning biofeedback, and is a past Board member of both the International Society for Neurofeedback and Research (ISNR) and the Biofeedback Certification International Alliance (BCIA), and was chair of the Education Committee and Treasurer of the Neurofeedback Division of the Association for Applied Psychophysiology and Biofeedback (AAPB). With her husband, Michael Thompson, M.D. she co-authored *The Neurofeedback Book: An Introduction to Basic Concepts in Applied Psychophysiology* (2003). They have been invited to teach about neurofeedback and biofeedback in 25 countries on five continents and present frequently at professional meetings in these fields.

Michael Thompson, M.D. devotes his time to the administration of the Biofeedback Institute of Toronto and teaching about neurofeedback plus biofeedback. When formerly practicing medicine he was medical director of London Psychiatric Hospital, associate professor and head of post-graduate education in psychiatry, University of Western Ontario, examiner for the Royal College of Physicians (Canada) for 10 years and chairman of their examinations committee in psychiatry. Numerous professional publications include *A Resident’s Guide to Psychiatric Education*. While associate professor, University of Toronto, he was psychiatric consultant to The Hospital for Sick Children’s neurology department and director of a centre that specialized in treating pre-school children with autistic spectrum disorders. Recent work has included more than 120 professional presentations and workshops on 5 continents and in more than 25 countries focused on assessment and training using EEG and peripheral biofeedback.

Prior to doing neurofeedback, Dr. Thompson had more than 20 peer reviewed journal publications, 7 professional textbook chapters, one book and more than 100 presentations with a major focus on training psychiatrists, child development, attention deficit,

learning, autism, and handling neurological illnesses. Since beginning a centre for biofeedback he has published with Dr. Lynda Thompson 7 book chapters and 17 journal articles on ADHD, Asperger's syndrome, concussion, NFB + HRV and stress management, as well as books including the basic textbook in the field, *The Neurofeedback Book An Introduction to Basic Concepts in Applied Psychophysiology*.



Robert Turner, MD, MSCR

*Network Neurology LLC
Network Neuroscience Research Institute
Associate Researcher, MIND Research Institute
Clinical Associate Professor of Neurosciences, Medical University
South Carolina
Charleston, South Carolina, USA*

Robert "Rusty" P Turner, MD, MSCR, is currently the owner and CEO of Network Neurology in Charleston SC. He is also Associate Clinical Professor of Neuroscience at the Medical University of South Carolina in Charleston, as well as an Associate Researcher with the MIND Research Institute in Irvine CA. Dr Turner maintains a full-time clinical, teaching, and neurophysiology practice with patients throughout the southeastern region of the United States.

Dr. Turner is actively involved in ongoing clinical research with collaborative studies in non-invasive neurostimulation and neuromodulation techniques as well as advanced techniques of EEG source analysis. Current research involves collaborating with colleagues in Charleston, Cape Town, South Africa, Mexico City, Beijing, and with several academic practices throughout the United States.

He has received numerous awards and honors in Charleston over the past 16 years, including multiple Faculty Excellence Awards for teaching, AREA Awards for excellence in ambulatory care, Golden Apple Nominations and Awards, and double honors in humanism with the AAMC Humanism in Medicine Award and the Leonard Tow Humanism in Medicine Award.

Dr. Turner is Board certificated by the National Board of Medical Examiners, became a certified member of

the American Society of Neurorehabilitation in 1992, and has eight medical specialty board certifications:: American Board of Psychiatry and Neurology With Special Qualification in Child Neurology; American Board of Pediatrics; American Board of Electrodiagnostic Medicine; American Board of Clinical Neurophysiolog; American Board of Psychiatry and Neurology with added qualifications in Clinical Neurophysiology, Neurodevelopmental Disabilities and Epilepsy; American Board of Psychiatry, and Quantitative Electroencephalography (QEEG) Certification Board



Eran Zaidel, PhD

*Professor Emeritus and research Professos
Dept of Psychology and Brain Research Institute, UCLA
Los Angeles, California, USA*

Eran Zaidel is a cognitive neuroscientist with a focus on hemispheric specialization and interhemispheric interaction in attention, perception, action, emotions and language. He has studied these domains in neurosurgical commissurotomy (split brain) patients, in brain-damaged patients with hemispheric lesions, and in normal participants. He is also interested in both congenital and acquired cognitive deficits, including schizophrenia, dyslexia, and ADHD. He has long-standing collaborations with colleagues using converging methodological perspectives, including behavior, physiology (brain imaging), and anatomy. Recent research interests include EEG Biofeedback, language in the right hemisphere, social-affective cognitive neuroscience, and consciousness, with particular attention to error monitoring and concepts of self in the two hemispheres.

P R E S E N T A T I O N A B S T R A C T S

MONDAY -
WEDNESDAY MAY 5-7

BSI PROFESSIONAL QEEG PROGRAM

Jay Gunkelman, QEEGD

The Professional QEEG Program provides didactic and practical learning in acquisition and interpretation of EEG and QEEG and prepares the attendee for QEEG certification

Electroencephalogram (EEG) has been used in the medical arena for over 50 years to diagnose sleep disorders and epileptiform behaviors among other things. Neurologists are trained to read raw EEG tracings and have been diagnosing based upon its findings for years. For the past 20 years, quantitative EEG has been in use to help distinguish psychological, as well as other physiological disorders, for example anxiety, ADHD, depression, traumatic brain injury and stroke. Quantitative EEG (QEEG) or brain mapping compares the individual EEG to a normative database consisting of subjects who are of comparable age and sex and during the same task. The use of QEEG greatly improves the ability to accurately design neurofeedback protocols and helps determine the best medication for specific brain wave profiles.

BSI NEUROTHERAPY CERTIFICATION PROGRAM

Cynthia Kerson, PhD

Barry Sterman, PhD

This course provides the accredited 36 hours for BCIA didactic. It will cover instrumentation and train on state of the art equipment, Thought Technology Infinity, BrainMaster

Atlantis, NeXus and EEGer. It is a 3-day F2F course and 10 hour web-based program. It is highly recommended that the 10 hours are taken within the 30 days prior to the F2F instruction. It covers treatment protocols, history of neurotherapy and operant conditioning, ethical considerations and basic neuroscience. This course is essential training for anyone who wishes to incorporate neurotherapy into his or her practice.

FUNCTIONAL NEUROMARKERS IN PSYCHIATRY AND NEUROLOGY: CLINICAL APPLICATIONS FOR DIAGNOSIS, PROGNOSIS AND TREATMENT

Juri Kropotov, Prof

This 3-day F2F workshop discusses the concepts of information flow within the brain and of functional neuromarkers, and of how these neuromarkers can be used in clinical practice. This course will also demonstrate recording procedures of event related potentials (ERPs) of the brain, the steps of ERP analysis in diagnosing, planning the treatment protocol and in monitoring the results of treatment. Each day will consist of two parts: theoretical part during morning hours and practical part during the afternoon hours.

WEDNESDAY MAY 7
SABA BEGINS

SABA WELCOME CHAMPAGNE RECEPTION

6:00 - 7:30

Barry Sterman, PhD

Cynthia Kerson, PhD

Ali Hashemian, PhD

FDA CLEARS THE WAY

On July 15th, 2013, The U.S. Food and Drug Administration cleared the way for marketing of the first medical device based on brain function to help assess attention-deficit/hyperactivity disorder (ADHD) in children and adolescents 6 to 17 years old. The application was based on the simple theta/beta ratio which has been shown to be higher in children and adolescents with ADHD.

This approval has a profound and far reaching impact on the clinical applications of qEEG and EEG neurofeedback. For the first time ever, a branch of the United States government has recognized what so many experts in this field have been claiming for years – that clinicians can measure and demonstrate variations in the brain activity of children with ADHD. This should also open the door for the 2nd part of the claim that neurofeedback can alter the underlying EEG and thus change the theta/beta ratio.

In this one hour talk we will cover the following topics:

- Role of FDA in governing medical practices and devices
- What information was the application based on
- What does the ruling say
- What is the marketing and legal implications to your practice
- How to maximize it to your advantage
- How to communicate/market this ruling to possible referring practitioners in your community
- Legal pitfalls to avoid to steer clear of FDA wrath



P R E S E N T A T I O N A B S T R A C T S

DINNER - on your own. See page 11 for local options

THURSDAY MAY 8

SMR NEUROFEEDBACK FOR IMPROVING SLEEP AND MEMORY - A DOUBLE-BLIND STUDY IN PRIMARY INSOMNIA

Manuel Schabus, Prof

9:00 - 10:30

A non-pharmacological intervention, namely instrumental conditioning of 12-15Hz oscillations (ISC), for improving sleep quality and memory is tested. EEG recordings over the sensorimotor cortex show a prominent oscillatory pattern in a frequency range between 12-15Hz (sensorimotor rhythm, SMR) under quiet but alert wakefulness. This frequency range is also known to be abundant during light non-rapid eye movement sleep, and is overlapping with the sleep spindle frequency band. Some early findings indicated that ISC of SMR during wakefulness can influence subsequent sleep. In two present studies we intend to clarify the nature of these effects and apply neurofeedback (NFT) to (sub) clinical insomnia patients.

Data of a counter-balanced double-blind follow-up study are currently being analyzed. Yet, preliminary results indicate that patients suffering from more severe insomnia do not benefit in sleep or memory over the 12 SMR NFT sessions. However, all groups including healthy controls, sleep state mispercept patients as well as insomnia patients do enhance SMR-power exclusively in the SMR (but not placebo) condition. Subjectively the sleep complaint decreased over

both conditions.

Current results indicate that besides healthy individuals also young people suffering from (sub-clinical) primary insomnia can experience subjective as well as objective benefits from ISC-NFT. The results of a comprehensive double-blind study are being integrated.

Acknowledgements: Research was supported by a FWF research (P-21154-B18) fund from the Austrian Science Foundation.

METHODOLOGICAL ISSUES: WHAT ARE WE ATTEMPTING TO DO?

Barry Sterman, PhD

11:00 - 12:30

"I don't need to know what I'm doing as long as it works." These words, which I have heard all too often, cause me great intellectual trauma, because my response is "I don't care if it works if I don't know what I am doing." I do neurofeedback, a perfectly good term, since that is what I do and I know why I do it. The principle that I apply is based on the assumption that the consequence, or feedback, of an EEG response leads to eventual alteration of that response due to that consequence, ergo "operant conditioning. This is a more narrow concept than neuromodulation, but both require a clear and appropriate target for change, effective procedures to address that target, and empirical evidence of that change. These are the issues that will be addressed here, since they are often buried by distractions.

LUNCH - on your own (see restaurant listing on p. 10)

12:30 - 2:30

A BRAIN SYSTEMS PERSPECTIVE FOR EVALUATING DIFFERENCES IN BRAIN ELECTRICAL ACTIVITY USING NORMATIVE AND NON-NORMATIVE APPROACHES

Don DuRousseau, AB, MB

2:30 - 4:00

In the past decade, several statistical methods have evolved for identifying cortical networks underlying specific activity in brain systems in the human. Although many approaches exist, which utilize either free running or event related potentials; this talk will focus on two methods that rely on continuous EEG signals alone. The 1st method uses the concept of a normative database, where individual EEG activity is compared against an age matched "normal" population using z-score statistics, and the 2nd method applies a within-subject repeated measures approach using t-score statistics. The difference between these approaches is subtle in that in the former, a group normal population of temporal and frequency components of the EEG must be compiled a priori for comparison of each individual to the group, and the latter requires several measures taken over time from the same individual. Both approaches can be used to measure brain activity pattern (BAP) changes in the EEG and infer a response to a given treatment modality. While the normative approach provides a tool to evaluate an individual's response to an intervention, the non-normative method provides a more robust means to evaluate group related changes from an intervention.

P R E S E N T A T I O N A B S T R A C T S

This talk will present original research using these two statistical approaches for evaluating system level changes in BAPs of A) several wounded warriors suffering from traumatic brain injury (TBI) comorbid with a post-traumatic stress disorder (PTSD) who underwent a program of twenty neurofeedback sessions, and B) a group of eighteen individuals (nine couples) who participated in a 90-day Imago® workshop for relationships in crisis. In both research cases, 32-channel EEG recording were made prior to, midway through, and at the end of each intervention, and these data were used to evaluate the subject's BAP changes at the individual (wounded warrior) and group (couples in crisis) levels. Several differences in data processing methodology will be presented and the strengths and weaknesses of the two approaches will be discussed. Finally, an interpretation of overall BAP changes will be examined from a network systems perspective in an attempt to understand how such changes in the EEG can be associated with each of the interventions and how changes in cognitive and emotional systems in the brain may be associated with each interventional outcome.

PANEL
METHODOLOGY
Barry Serman, PhD
Manuel Shabus, Prof
Don DuRousseau, AB, MBA
4:30 - 6:00

QEEG CERTIFICATION
EXAM
7:00 - 10:00

FRIDAY MAY 9

ABNORMAL INFORMATION PROCESSING AND CONVERGENT VERSUS CORE DEFICIT EFFECTS IN ADHD

Sigi Hale, PhD

9:00 - 10:30

The focus of psychiatric and psychological research has arguably shifted from brain damage and psychosis to more common forms of psychopathology that reflect extreme variants of otherwise normal cognitive and behavioral characteristics. Now, in addition to trying to understand overtly damaged brain function (flat tire effects), we are also seeking to understand liabilities associated with non-optimized, but otherwise intact, cognitive and behavioral abilities (poor tuning effects). This shift has pushed us to evolve our investigational strategies to more broadly consider whole-brain integrated brain-systems, as well as seek to develop more specific quantifiable indicators of impoverished brain function and behavior. This talk will address such challenges in relation to ADHD and present a novel whole-brain integrated perspective of ADHD brain function pathology.

FUNCTIONAL NEUROMARKERS IN PSYCHIATRY AND NEUROLOGY: CLINICAL APPLICATIONS FOR DIAGNOSIS, PROGNOSIS AND TREATMENT

Juri Kropotov, Prof

11:00-12:30

If you missed the 3-day course, this lecture provides you with an

overview of using ERPs in clinical practice. (See full desc. on page 7.)

LUNCH - on your own. See page 11 for local options.

12:30 - 2:30

REFINING EEG BIOMARKERS IN ADHD FOR DIAGNOSIS AND TREATMENT RESPONSE MONITORING

Sandra Loo, PhD

2:30 - 4:00

Electroencephalography (EEG) has been used for many decades to study child psychiatric disorders in general, and ADHD in particular, however, clinical and research applications of EEG are rapidly evolving. EEG data and its application in basic research and clinical service can be vastly improved by advancements in signal processing. The data presented suggest that EEG-based biomarkers may be useful indices of developmental course of disorder, behavioral and cognitive functioning, diagnosis, and prediction of treatment response. Although the clinical utility of EEG measures is promising, the data suggest that caution is warranted when using them in clinical practice.

PANEL **NEUROTHERAPY AND ADHD**

Sandra Loo, PhD

Teresa Bailey, PhD

*Michael & Lynda Thompson, MD,
PhD*

Sigi Hale, PhD

4:30 - 6:00

ANNUAL SABA BANQUET

6:30-10:00 (cocktails @ 6)

SATURDAY MAY 10

NEUROFEEDBACK AS A TREATMENT MODALITY FOR SEIZURE DISORDERS

Barry Sterman, PhD

9:00 - 10:00

The origins of neurofeedback for the treatment of seizure disorders can be traced directly to the first systematic demonstration of confirmed and valid EEG operant conditioning, initially in animals (for an in-depth review, see Sterman, 2000). In the context of sleep research, we conducted a series of studies investigating learned suppression of a previously rewarded cup-press response for food in cats. Cats were trained with operant conditioning to inhibit the cup-press response during the intermittent presentation of a tone. A unique EEG rhythm gradually appeared over sensorimotor cortex at a level significantly above the non-rhythmic low-voltage background activity. The anatomically based term “sensorimotor rhythm”, or SMR, was coined to describe this pattern. The rhythm occurred variously within a range of 11-19 Hz, depending somewhat linearly on the background level of arousal, and had a peak frequency of 13 Hz with a modal spectral range of 12–15 Hz, not unlike mammalian EEG sleep spindles. This fact could help explain the apparent confusion between the terms SMR and Mu Rhythm in humans. We decided to study this clearly visible and distinct EEG rhythm directly by attempting to apply the principles of operant conditioning to see if cats could be trained to reliably produce SMR activity voluntarily for a food reward. Cats easily learned this EEG self-regulation task, even more quickly than the bar press. Further, when food reward was withheld, a procedure called “extinction” a remarkable elevation of SMR output and associated quiescent behavior was observed, confirming operant conditioning. This training had clearly altered neural circuitry. When

employing SMR training with cats and monkeys exposed to convulsant drugs they were found to display significantly prolonged resistance to seizures, despite displaying the same pro-drom pattern seen in controls. This finding suggested that SMR training had somehow inoculated the cats against experiencing epileptogenic influences. Subsequently, this research was successfully extrapolated to humans, where it was repeatedly documented that seizure incidence and severity could be lowered significantly. Additionally, patients reported that their quality of life had also improved. On rare occasions seizures appeared to be totally controlled, allowing at least one client to obtain a California drivers license. This work was followed by numerous other studies examining the effects of SMR EEG feedback training on seizure disorders. The data from these studies has been reviewed in meta-analyses by Sterman, 2000 and Tan, et al, 2009. Neurophysiological studies have provided a convincing model for the generation and functional effects of the SMR

CAN WE TEACH OUR BRAIN TO ELIMINATE SEIZURE ACTIVITY?

Rivi Sela

10:30 - 12:00

Over the past 40 years, researchers have examined various non-drug

approaches to the treatment of epilepsy. SMR up-training as an efficient treatment for epilepsy was first discovered in the mid-'70s by Prof. Barry Sterman of the UCLA School of Medicine.

From that time, many researches & clinicians followed his lead. Most research studies report high success rates in reducing seizure frequency and magnitude for patients who do not respond to anti-convulsant drugs.

This talk follows the cases of two young epilepsy patients who were treated with QEEG guided neurofeedback at our clinic. Both of them experienced total cessation of seizures at an early stage in the treatment and displayed substantial behavioral and cognitive improvement during the course of treatment. Both patients displayed a normal EEG at the end of the treatment.

PANEL

NEUROTHERAPY AND EPILEPSY

Barry Sterman, PhD

Robert Turner, MD

Jay Gunkelman, QEEGD

Rivi Sela

12:30 - 2:00

ANNUAL SABA BANQUET

FRIDAY NIGHT

6:30 - 10:00

NO-HOST COCKTAILS 6:00

\$75 PERSON

F E R R Y S C H E D U L E

Long Beach Catalina Landing/Avalon Service

April 4 – May 22, 2014

Long Beach Downtown Landing to Avalon		Avalon to Long Beach Downtown Landing	
Departure	Frequency	Departure	Frequency
6:15 a.m.	Daily	8:00 a.m.	Daily
8:30 a.m.	Friday - Sunday	10:15 a.m.	Friday - Sunday
10:00 a.m.	Daily	11:45 a.m.	Daily
12:15 p.m.	Friday - Sunday	2:05 p.m.	Friday - Sunday
2:00 p.m.	Daily	3:45 p.m.	Daily
4:15 p.m.	Friday - Sunday	6:00 p.m.	Friday - Sunday
5:45 p.m.	Daily except Friday	7:30 p.m.	Daily except Friday
7:15 p.m.	Friday	8:45 p.m.	Friday

Catalina Landing/Avalon trips are approximately 1 hour.

Holiday and holiday weekend schedules may vary, call for information.

R E S T A U R A N T S

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101 Crescent Avenue
310-510-2009

Steve's Steakhouse

417 Crescent Avenue
310-510-0333

The Lobster Trap

128 Catalina Avenue
310-510-8585

Avalon Grille

423 Crescent Avenue
310-510-7494

The Sand Trap

501 Avalon Canyon Road
310-510-2505

Catalina Coffee & Cookie Co.

205 Crescent Avenue
310-510-2447

Descanso Beach Club

Descanso Beach
310-510-7400

Catalina Pizza Kitchen at Three Palms

101-111 Crescent Avenue
310-510-0967

Bluewater Avalon

306 Crescent Avenue
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Mi Casita Authentic Mexican Restaurant

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The M Restaurant

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310-510-1161

Coyote Joe's

113 Catalina Avenue
310-510-1176

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310-510-0008

Original Antonio's Deli, Inc.

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This second year of SABA and BSI collaboration rides on the tails of last year's very successful conference and courses in Charleston, SC. This is the fourth time SABA has held its conference on Catalina Island as its beautiful surroundings hold a unique atmosphere for relaxation as well as learning and consolidation. This combined program stands to continue the traditions of both BSI and SABA in providing excellent learning and visiting with good friends.

-- Cynthia Kerson, PhD, QEEGD, BCN, BCB
Director of Education, BSI & 2014 SABA Program Coordinator

FEES

BSI Pre-SABA Courses

***Professional QEEG Certification Program | BCIA Neurotherapy Certification Program
Functional Neuromarkers in Psychiatry and Neurology: Clinical Applications for Diagnosis,
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\$1,095	Individual
\$ 995	2 or more from same facility or spouse
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SABA Program

Includes: All lectures Thursday - Saturday and the champagne welcome reception on Wednesday, May 7 6:00-7:30

	Before April 4	After April 4
INDIVIDUAL:	\$445	\$495
SPOUSE or 2 OR MORE FROM THE SAME FACILITY:	\$345	\$395
STUDENT:	\$145	\$195

17 conference APA CEs available for \$45
Friday Night Banquet \$75

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HOTEL INFORMATION

Catalina Canyon Resort

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(866) 599-6674 | \$119/night including internet (mention BSI/SABA conference)

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Thank you for joining us!