2017 ISNR Annual Conference

September 18-24, 2017

PRE-CONFERENCE WORKSHOPS—SEPTEMBER 18-20, 2017

8-Hour Pre-Conference Workshop (PCW) Descriptions

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MONDAY, SEPTEMBER 18–WEDNESDAY, SEPTEMBER 20, 2017, 8:00AM–5:30PM (additional fees apply)

PCW 1.1, 1.2, 1.3 (3-day) QEEG Didactic Board Certification Course
Level: Intermediate
Thomas Collura, PhD, David Cantor, PhD, Harry Kerasidis, MD

This workshop, which is uniquely taught by three qEEG diplomates with diverse backgrounds, provides not only an opportunity to fulfill the qEEG Certification Board requirements, but also provides a broad and up-to-date exposure to the current state of qEEG and neurofeedback. Attendees who are seeking qEEG Board certification, as well as those who have experience in qEEG and neurofeedback will find this a comprehensive and engaging workshop that by definition will include essential material to ensure a solid grasp of current qEEG concepts.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Know the best subject inclusion and exclusion criteria for building a database.
- Understand fundamental statistical consideration within databases.
- Have knowledge about t-tests, alpha and p levels, correlational relationships, and z-scores.
- Understand developmental changes in the EEG.
- Understand the origins of the EEG.
- Know what EEG signatures should be referred out to other professionals.
- Be knowledgeable about Brodmann area functions and network connections.
- Have an understanding of LORETA interpretation and training.
- Be knowledgeable about general cognitive and clinical changes that take effect after neurofeedback training based upon publications.
- Understand how clinical presentation may affect the EEG.
- Explain sources in the brain from which various frequency bands normally emanate, and their physiological basis.

- Explain how t-tests, alpha and P levels, correlational relationships, and z-score measures are used in qEEG and in neurofeedback.
- Explain what defines the various montages and the circumstances of their use.
- Describe how LORETA and sLORETA-based interpretation and training provide unique capabilities compared to surface metrics.
- Have a working knowledge of the montages, transforms and power displays along with the specific perspectives they can provide a reader of qEEG output.
- Understand phase and coherence, how they relate and what they can mean in the interpretation of the qEEG.

PCW 2.1, 2.2, 2.3 (3-day) Infraslow Fluctuation (ISF) Workshop

Level: Basic
Mark Smith, MSW & Ray McGarty, MSW

Infraslow frequency research demonstrating the association between ISF and mammalian behavior has been accumulating since the middle of the last century. Since the new millennium, hundreds of research projects have demonstrated the infraslow signal's centrality in the human cerebral cortex. More recently hundreds of clinicians have used Infraslow Fluctuation training in clinical practice with outcome reports that suggest its importance in the neurofeedback armamentarium. While no large scale research exits to date, published research is accumulating confirming clinical reports.

This beginner's workshop will demonstrate the process of Infraslow Fluctuation training in clinical practice. Day one will include a technical overview, basic software instruction, clinical assessment, and an introduction to the ISF training method. Days two and three will feature hands-on education, instruction in ISF clinical assessment, and evaluation of the ISF intervention.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:
Day One:

- Identify the origins of the ISF signal in cortex.
- Know the behavior associated with Infraslow Frequencies in research.
- Identify equipment and software specific to slow wave training.
- Master specific software and equipment used in ISF training.
- Implement ISF concepts in treatment populations.
- Utilize clinical tools and assessments to appropriately categorize clinical presentations.
- Make choices on beginning placements based on client presentation.
- Understand client response in an ISF session through observation of an experienced clinician.

Day Two:

- Identify the special requirements of ISF training as a trainer.
- Gain experience with hands on training.
- Learn from the experiential to refine the optimization process.
- Identify the special requirements of training as a trainee.
- Gain knowledge of ISF training as a trainee.
- Understand treatment response through the application of assessment tools.
- Utilize common treatment responses in shaping future ISF training sessions.
- Understand the relationship between Optimum Frequency and client response

Day Three:

- Develop training protocols after the optimization process is complete.
- Gain in treating common clinical presentations with ISF training.
- Hands-on training as client and trainer.
- Understand treatment outcomes using Pre/post qEEGs and neuropsyche testing

TUESDAY, SEPTEMBER 19 - WEDNESDAY, SEPTEMBER 20, 2017 8:00AM–5:30PM (ADDITIONAL FEES APPLY)

PCW 3.1 & 3.2 (2-DAY) BRAIN FUNCTIONAL NETWORKS: THEORY AND APPLICATION

This workshop has changed from a 3-day workshop to a 2-day workshop due to unforeseen circumstances.

Level: Advanced

David Cantor, PhD; Richard Soutar, PhD; Dick Genardi, PhD

Neurotherapy clinicians are seeking scientifically relevant and improved approaches to facilitate functional improvement in the patients they serve. The history and current stats of the research regarding brain functional networks have been complex and questionable. This workshop provides important information for attendees of ISNR as they are become oriented to these more advanced methods in neurofunctional treatment in order to help decipher and potentially adopt protocols for the treatment of their patients.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- The participant will be able to name at least three prominent networks common across several models.
- The participant will be able to describe the hubs of the Default Mode Network.
- The participant will know the fundamental concept behind graph theory.
- The participant will be able to describe cross frequency communication in the context of networks adaptability.

- Participants will be able to devise a strategy for a network based protocol.

TUESDAY, SEPTEMBER 19, 2017, 8:00AM–5:30PM (ADDITIONAL FEES APPLY)

PCW 4 Behavioral Assessment for Protocol Development: **ISNR FOUNDATIONS**

Level: Basic
Joy Lunt, RN

Learning the basic assessment of Behavioral presentation of difficulties is important so that all aspects of assessment may be personalized to each client. Regardless of what other assessment information is gathered, EEG, qEEG, SPECT scan or other types of brain imaging, understanding the behavioral presentation is important in formulating a protocol and in tracking progress.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Name the various lobes of the brain.
- Identify the unique functions of the separate lobes of the brain.
- Learn the concepts of the Arousal Model.
- Learn the rational of developing protocols with regard to Neurodevelopmental steps.
- Identify the signs and symptoms of Sensory Integration.
- Learn examples of how to track client progress.

PCW 5 ClinicalQ and Braindriving

Level: Basic
Paul Swingle, PhD

Learn rapid and precise intake ClinicalQ assessment based on clinical data base. Thorough review of unconditioned stimuli in many modalities that can be used in braindriving protocols as well as for stand-alone applications. Participants will be able to immediately apply techniques learned in the workshop with any clinical EEG platform.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Learn rapid diagnostic procedures.
- Interpret qEEG data.
- Identify common qEEG signatures for disorders.
- Recognize EEG patterns for trauma.
- Determine conditions requiring full qEEG.
- Identify contra indicators for aggressive treatment.
- Determine conditions suitable for potentiating treatment options.

- Learn braindriving techniques.

TUESDAY, SEPTEMBER 19–WEDNESDAY, SEPTEMBER 20, 2017, 8:00AM–5:30PM (additional fees apply)

PCW 10.1 & 10.2 (2-day) Crash Course in NeuroField pEMF, tDCS/tACS/tRNS Synchronized EEG Neurofeedback

Level: Intermediate-Advanced
Nicholas J. Dogris, PhD & Tiffany Thompson, PhD

In this workshop, you will receive a crash course in the NeuroField64 software platform. NeuroField64 combines pEMF, tDCS/tACS/tRNS stimulation modalities with z-score/amplitude EEG neurofeedback for the purpose of enhancing neurofeedback effectiveness. This two day workshop will cover how to review QEEG brain maps and generate a treatment plan, setup NeuroField64 for synchronized stimulation and EEG neurofeedback and review treatment outcomes. Dr. Dogris will lecture on current research that shows how pEMF, tDCS/tACS/tRNS affects the brain. Dr. Thompson will lecture on the clinical implications of this modality on the psyche from a Depth Psychology perspective. Dr. Dogris and Dr. Thompson will lecture regarding the application of NeuroField64 on various clinical diagnosis including (but not limited to) Autism, ADHD, Depression, Anxiety, TBI, and Concussion. Dr. Dogris and Dr. Thompson will conduct live demonstrations of NeuroField64 and provide participants the opportunity to experience this modality during the workshop. Participants should have a basic knowledge of neurofeedback and QEEG.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Identify how pEMF, tDCS/tACS/tRNS affects the brain.
- Recognize how stimulation modalities can enhance neurofeedback outcomes.
- Setup the NeuroField64 synchronized stimulation/neurofeedback platform.
- Utilize the NeuroField64 stimulation databases.
- Participants will learn new ways to identify and quantify clinical symptoms in the QEEG.

WEDNESDAY, SEPTEMBER 20, 2017, 8:00AM–5:30PM (ADDITIONAL FEES APPLY)

PCW 6 Assessing Functional Neuromarkers in Clinical Practice: QEEG, ERPs, Neurofeedback, tDCS

Level: Intermediate
Prof., dr. Juri (Yuri) Kropotov

The attendees will learn use a recently developed methodology for assessment and modulation of human brain functions and dysfunctions. The methodology includes 1) recording EEG in resting state and during task conditions, 2) computing EEG spectra, event-related synchronization/desynchroniztion and event-related potentials, 3) decomposing these parameters into latent components, and 4) comparing them with the corresponding components of healthy subjects from the HBI (Human Brain Index) normative database. The methodology also includes the algorithm of constructing protocols of neuromodulation on the basis of combing the obtained results of assessment with all experience acquired in clinical neuroscience during the last decades.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Learn basic principles of EEG preprocessing: artifact correction, automated spike detection, spectral analysis of EEG,
- Learn mechanisms of generation of infra-slow oscillations, EEG rhythms (theta, alpha, beta).
- Understand brain systems and mechanisms of their functioning.
- Learn how to measure neuromarkers of normal information processing.
- Learn how to measure neuromarkers of abnormal information processing: ADHD, schizophrenia, OCD, autism.
- Learn about methods of neuromosulation (tdcs, neurofeedback, TMS).
- Learn how to construct protocols of neuromodulation.
- Observe recording a healthy subject with demonstration of software and hardware.

PCW 7 Current Clinical Applications of EEG-based Assessment and Treatments: sLORETA, Network and Hub Activation, Pulsed Electromagnetic (pEMF) and Integrated Methods

Level: Intermediate

Thomas Collura, PhD, Mark Smith, MSW, Penijean Gracefire, MAMHR

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Describe how qEEG assessment data is combined with symptom and behavioral data to construct a brain-based intake.
- Explain how neurofeedback protocols that target specific eeg amplitude and connectivity parameters can be expected to lead to clinically significant functional change in clients.
- Explain how brain connectivity is reflected in qEEG measurements and in clinical presentation, and how changes in brain connectivity are reflected in client outcomes.
- Articulate the principles of sloreta brain activation imaging and neurofeedback in clinical practice.
- Describe the principles of infra-slow fluctuations (isf) and the literature base supporting its interpretation and use.

PCW 8 Neurofeedback QEEG Basics ISNR FOUNDATIONS

Level: Basic

Mike Cohen, Glenn Weiner, PhD

This workshop is for anyone new to neurofeedback. This course helps fill in the gaps regarding qEEG, EEG and the basics of neurofeedback. The terminology is explained and shown SLOWLY, step by step. We encourage attendees to ask the most BASIC questions.

We focus on helping attendees understand a small number of key concepts well. Our goal is to slow it down till you really get it.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Understand EEG basics. What is beta/alpha/theta/etc.? What does it tell us? How do we use it? What is a “slow” or “fast” EEG? Making sense of those squiggly lines.
- Understand how neurofeedback really works. What does the equipment do? How does the brain respond?
- How do you decide/target what to train? Does the EEG/qEEG tell all? Can you target key brain areas/issues without a qEEG? Intro to multiple models of training and protocols.
- QEEG simplified. What are the basic concepts needed for beginners? How does it guide training? If you give an EEG or qEEG to 5 experts, how many opinions would

you get? Are there different “flavors” of qEEG? A discussion of options—including how to learn more.
- Understand there are very different points of view in the field about the type of training. From single channel vs multi-channel vs low frequency, vs z score, coherence, etc..
- Understand how medications affect neurofeedback and vice versa. Nutrition?
- Learn what outcomes providers expect and get from neurofeedback. When does it not work?

PCW 9 Calming Fear: Integrating Neurofeedback and Psychotherapy in Trauma Treatment

Level: Intermediate

Sebern Fisher, MA

With the advent of research and popular press on the effectiveness of neurofeedback for early childhood trauma, more of these patients are finding their way to neurofeedback providers. Increasing numbers of psychotherapists who work with trauma are becoming trained in neurofeedback. No matter what system of neurofeedback one uses or what therapeutic school one subscribes to, the principle of affect regulation applies. This workshop is designed to provide the trauma therapist using neurofeedback and the neurofeedback practitioners confronting developmental trauma a path to affect regulation.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:
- Explain the necessity of affect regulation in the treatment developmental trauma.
- Describe at least four protocols that can address fear and rage.
- Describe neurofeedback approaches to quieting shame.
- Describe the relationship between affect regulation and executive function.
- develop a plan for integrating neurofeedback and psychotherapy.

3-Hour Conference Workshop (WS) Descriptions

THURSDAY, SEPTEMBER 21, 2017, 3:15–6:30PM (ADDITIONAL FEES APPLY)

WS 1 QEEG Concepts and Applications ISNR FOUNDATIONS

Level: Basic
Thomas Collura, PhD

This workshop, which is part of the ISNR Foundations track, will provide a basic and complete overview of scientific and clinical principles of this important area. The material to be presented is drawn from a diverse range of references, which would require significant time for a novice to absorb. After this workshop, participants should be able to describe and discuss the current state of the art in qEEG and its applications, in general clinical use.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Understand the generation of the EEG from a physiological point of view
- Understand how clinically relevant brain function can be discerned using EEG and qEEG techniques.
- Understand how qEEG can be used to assess clients, and to assess client treatment progress.
- Describe how inverse solutions (LORETA, etc) can be used to assess brain function.
- Explain how individual differences, coping and compensating strategies, and peak performance reflect in the qEEG.
- Explain how electrophysiology and volume conduction produce the EEG.
- Describe the basic frequency bands of the EEG, and how they reflect brain activation.
- Explain the concentration/relaxation model of EEG generation and its relevance to clinical practice.

WS 2 Assessing and Treating Coherence and Connectivity Anomalies (no really)

Level: Intermediate
Robert Coben, PhD; Anne Stevens, PhD

Participants will learn about connectivity assessment and multivariate coherence training. We will review the limitations of bivariate coherence assessment and how multivariate autoregressive approaches can solve these. Demonstrations of advanced connectivity assessment will be provided. This will include advances and an approach including ICA, dipole localization and granger causality. This allows for source derived connectivity metrics that show reciprocal influences. This will then lead to our training approach; four channel multivariate coherence neurofeedback. We will review its application, theory and empirical

evidence. Clinical demonstrations and use of the actual training platform will be shown as well.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Participants will understand the differences between bivariate and multivariate coherence approaches.
- The learner will appreciate multivariate coherence assessment techniques.
- An appreciation for this new form of neurofeedback will be provided.
- Participants will receive education regarding the demonstrated efficacy of this approach.

WS 3 Deep States NeuroMeditation: New Innovations and Implications Based on Psychedelic Science

Level: Intermediate

Jeff Tarrant, PhD; Heather Hargraves, MA; David Ims

In this workshop, we explore the history of Deep States neurofeedback and potential additions to this field. We will examine current brain imaging research on the use of psychedelics for the treatment of mental health in an attempt to understand how these substances create such profound impacts and how we might use this information in neurofeedback. We will describe preliminary research with psychedelic-informed neurofeedback protocols, exploring the potential implications for this work for mental health treatment. We will also explore a variety of adjunctive technologies that may be used to enhance training, including virtual reality, physical sound, and evocative music.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Describe the history of Deep States neurofeedback.
- Explain how research on psychedelic medicine relates to Deep States neurofeedback.
- Design neurofeedback protocols to promote a variety of Deep States.
- Identify at least 3 adjunctive strategies to assist in the Deep States process.

WS 4 Fix Your Business, Fix Your Patients

Level: Intermediate
Seth Conger

To provide the best experience and achieve the greatest results with your patients, you first must build and maintain a sustainable business. Most of us do the opposite, relying on our clinical experience, resources and technology to help patients while leaving the business as an afterthought. If you build it, they will come…right? Unfortunately, not. Luckily, you can still develop the business strategies and systems to grow a successful, sustainable practice. A new amplifier, software update or protocol will not be the catalyst to sustainable growth of your business and greater personal and professional fulfillment… this course may be.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- First hour: How to set up your business to succeed in a world of uncertainty while developing a growth or exit strategy.
- Second Hour: Specific marketing & advertising tools and tactics to promote and grow your business.
- Third Hour: Reward your employees, develop internal systems and enjoy more time doing what you love to do as your business grows and your patients achieve results.

WS 5 Ethics in QEEG and Neuromodulation

Level: Intermediate
Leslie Sherlin, PhD; Robert Longo, MRC

Professionals practicing neurofeedback training are often licensed in a particular discipline. Licensed professionals are often required by discipline or state licensure to obtain ethics training for license renewal. Neurofeedback is a growing field among many disciplines. Ethical training and practice is essential in order to provide quality care and services to clients and patients.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Based on the content of this presentation, the participant will be able to identify the purpose of having and following professional ethics.
- Based on the content of this presentation, the participant will be able to identify scope of practice issues related to qEEG and neurofeedback.
- Based on the content of this presentation, the participant will be able to identify key aspects of client/patient orientation to qEEG and neurofeedback
- Based on the content of this presentation, the participant will be able identify common behaviors and actions that may result in ethical violations.

WS 6 Utilizing Asymmetry Analysis for Assessment and Training in Neurofeedback

Level: Intermediate
Richard Soutar, PhD

The workshop will begin with a literature review, propose a theoretical model for application explaining mechanisms of action and provide empirical statistical data in support of that model. It will review methods of operationalizing this theoretical perspective in clinical terms and identify the challenges involved. It will focus of quantifying the outcomes of the method in a manner which specifically informs the clinician regarding client stages of progress, defines the expected psychophysiological responses to each stage of progress, and aids the clinician in recognizing when to terminate the client.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Will be able to effectively identify the level of anxiety and depression in clients based entirely on qEEG analysis.
- Determine the phase of client anxiety or depression based entirely on qEEG analysis.
- Deduce the best training locations for reducing symptoms of anxiety or depression based on qEEG analysis.
- Analyze the level of response to protocol based on quantitative trend screen analysis.
- Empirically determine when to change training location based on trend screen analysis.
- Identify Stages of progress based on trend screen analysis.
- Significantly reduce symptoms of anxiety and depression.

WS 7 The Role of Astroglia in Brain Self Regulation: Implications for Neurofeedback

Level: Intermediate
Hanno Kirk, LICSW

This workshop will present the theoretical explanations and justifications for the use of slow cortical potentials and infralow frequencies. It will present clinical data from 2008 to 20016 confirming the successful use of infra low frequencies as made possible by the technical advances in filters to produce band specificity in the ultra low domain.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Be able to list the multiple critical regulatory functions of astroglial cells.
- Demonstrate understanding of the action on the brain as well as the theoretical foundations for the ultra low frequency approach
- Be able to use Connectome maps of the brain's interconnections to explain the spillover or global effect of Neurofeedback training to self and clients

WS 8 QEEG, Neurofeedback, Stimulation and HRV Innovations for Concussions and TBI in Athletes

Level: Intermediate

Michael Linden, PhD; James Thompson, PhD; Leah Lagos, PhD

The need in the field for accurate diagnostics and effective treatments of concussions, TBI and Dementia is vital. Concussions, TBI and related Dementia/CTE are increasingly being diagnosed in youth-professional sports. qEEG and ERP are being increasingly used in the diagnosis and monitoring of TBI and concussions with athletes. The standard treatment is usually rest. Neurofeedback and biofeedback have a history of successful results for both the physiological and neurological symptoms on concussions and TBI. Recently direct Neurofeedback stimulation has been used successfully with professional football players with TBI related Dementia.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Based on the content of this presentation, the participants will learn how EEG, qEEG and ERP are useful in the diagnosis of concussions and TBI
- Based on the content of this presentation, participants will learn how HRV is useful in reducing the physiological effects of TBI and can be combined with Neurofeedback.
- Based on the content of this presentation, participants will learn how Neurofeedback stimulation can be successful in treating the cognitive and neurological effects of TBI.
- Based on this presentation, participants will discover how Direct Neurofeedback stimulation is being used with retired NFL players with TBI related Dementia.

WS 25 BCIA Exam Review Course

Level: Intermediate

Mark Jones, DMin

For those planning to sit the BCIA exam, this course will provide a basic overview of the BCIA Blueprint of Knowledge. The workshop will also serve as a concise overview of neurofeedback theory and practice for those who simply want an update. The workshop is a fast moving overview of neurofeedback, history of the field, principles of learning, concepts of biofeedback, basic neurophysiology and neuroanatomy, basic instrumentation and electronics, research, psychopharmacological considerations, treatment planning, and professional conduct.

The presenter regularly teaches neurofeedback at introductory to advanced levels and mentors clinicians seeking certification. As a seasoned clinician, the instructor brings insights from years of practice. The content focuses on the type of review that students have reported as helpful for preparing for the exam and achieving certification.

The workshop is designed to create a supportive atmosphere where participants interact, create sound exam-taking strategies and gain confidence in their preparation. Key concepts from each area of the BCIA Neurofeedback Blueprint of Knowledge will be highlighted. Review questions will be presented so that students can assess their progress as the workshop progresses.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Describe EEG collection and interpretation concepts, such as montages; active, reference, and ground electrodes, analog-to-digital conversion, QEEG, LORETA source density analysis
- Name electrical and instrumentation terms including impedance, differential amplifier, sampling rates, high and low pass filters
- Identify common artifacts including eye movement, muscle tension, cardiac, electrode movement
- Recognize key features of normal and abnormal waveforms
- Describe the application of key learning theory concepts, such as, operant conditioning, to NFB
- Name key Brodmann Areas and related disorders that are common targets of NFB treatment
- List the levels of efficacy for NFB
- Understand the basis of event related potential (ERP)
- Describe basic ethical principles inherent in NFB practice
- Define basic statistical terms
- Identify basic brain structures related to NFB
- Name key neural networks
- Understand the purpose of common biofeedback modalities used along with NFB
- List common disorders where NFB is evidenced-based including seizure disorders, ADHD, anxiety, depression, post-concussion

FRIDAY, SEPTEMBER 22, 2017, 3:15–6:30PM (ADDITIONAL FEES APPLY)

WS 9 Treatment Protocol Options—**ISNR FOUNDATIONS**

Level: Basic
Glenn Weiner, PhD; Mike Cohen

There are many ways to do neurofeedback. This workshop will review the various ways that it is being done and the supportive research behind them. We will also present numerous case examples showing the decision process in selecting protocols based upon client assessment data. Depending upon participants interests we can discuss the protocol decision logic for patients from our clinics with PTSD; OCD; ADHD; Chronic Pain; Depression; Autism; Epilepsy; and Migraines.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Participants will become familiar with long used SMR, Beta and Alpha/Theta protocols that are still being used.
- You will also learn about choosing protocols based on clinical data overlaid with knowledge of brain regions by function, including Brodmann areas.
- Participants will participate in reviewing logic for choosing reward and inhibits frequencies.
- Participants will come familiar with which protocols are research based—and which are not.
- Participants will review logic for when to change protocols.
- Participants will participate in learning about the pros and cons of various type of feedback (e.g. DVD vs simple games vs. numerical feedback vs complex games, etc.)
- Participants will develop an understanding of issues related to manual vs. auto thresholding, and reinforcement rates.
- Participants will learn about using client's responses to treatment to make protocol adjustments.

WS 10 How Bioregulation Therapy and Nutritional Support Can Improve Neurofeedback Results

Level: Basic
Turul Sengul & Roseann Capanna-Hodge, EdD

This workshop will offer technical, clinical and practical information regarding the synergy and effectiveness of combining Bioregulation Therapy, proven nutritional practices and traditional neurofeedback, in order to improve client results. Attendees will learn the science behind BRT, how to select programs and protocols to best enhance neurofeedback, health and wellness applications, effective nutritional practices, and how to successfully integrate BRT and sound nutrition into a neurofeedback practice. Attendees will hear clinical case

reports that include modality prioritization, BRT program selection and therapy application. Attendees will also have the opportunity to experience or observe a typical BRT session.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Develop an understanding of early SMR, Beta and Alpha/Theta protocols that are still being used.
- Develop an understanding of how to choose reward and inhibits.
- Identify key components for protocol selections based on qEEGs.
- Understanding of which protocols are research based—and which are not.
- Participants will develop an understanding as to when to change protocols.
- Develop an understanding as to the pros and cons of various type of feedback (e.g. DVD vs simple games vs. Numerical feedback vs complex games, etc.).
- Develop an understanding of issues related to manual vs. Auto thresholding, and reinforcement rates.
- Learn to use client's responses to treatment to make protocol adjustments.

WS 11 Z-score Cycling: Augmenting Z-score Training with Infra Slow Oscillations (ISOs) and Pulsed ElectroMagnetic Fields (pEMFs)

Level: Intermediate

John Demos, MA

Cycling z-score training with either pulsed Electromagnetic Fields (pEMF) or Infra Slow Oscillations (ISOs) provide clinicians with a new and likely powerful way to combine these three modalities. Learn how to add ISO (low frequency training) or pEMF to your practice. Some hesitate to employ either pEMF or ISO for a variety of reasons. However, one goal of this workshop is to simplify pEMF and ISO training. Setting up protocols can be just as easy as setting up z-score training. ISO and pEMF adjustments have been minimized. Cycling protocols will be distributed for BrainAvatar z-score users at the workshop.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Explain how pulsed Electromagnetic (pEMF) frequencies can act as a cellular repair treatment.
- Explain how Infra Slow Oscillations (ISO) are related to glial cells that oversee key neuronal activities.
- Add Z-score cycling with ISO or pEMF to their practice providing they have the matching equipment and software combination.
- Set random pulsed electromagnetic frequency ranges and ISO reward ranges to cycle on and off based on z-score performance.

WS 12 Sport Related Concussion: Integrating QEEG and Neurofeedback with Best Practices

Level: Intermediate

Harry Kerasidis, MD

Sport related concussion is a common brain injury. Neurotherapists can take a pivotal role in the entire process of concussion management, and assume a leadership role in their community as the go to resource for concussion care. This half-day workshop will review the state-of-the-science of sport concussion, including pathophysiology of the injury, pre-season evaluations, post injury assessments, and therapeutic interventions. The workshop will emphasize the integration of qEEG and neurotherapy technology, and provide a model for an integrative approach to setting up a sport concussion clinic.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Define concussion injury.
- List at least one basic pathophysiologic principle of concussion injury at macroscopic, microscopic and molecular levels.
- Recognize at least 5 signs and 5 symptoms of concussion injury.
- Identify 4 unique features of sport related concussion.
- Identify the 3 phases of concussion management.
- Identify frequently observed findings on qEEG analysis of acute and chronic concussion injury.
- Consider neurotherapy treatment options for acute and chronic post concussion cases.

WS 13 Integrating Neurofeedback and Psychotherapy in Treating Developmental Trauma: A Workshop for New Practitioners and Newly Interested Trauma Therapists

Level: Basic

Sebern Fisher, MA

Increasingly, psychotherapists, particular those who are working with trauma and personality disorders, are looking into the field of neurofeedback. This workshop serves as an open invitation to them as well as an informational session for those who are just beginning to use it for their traumatized patients. This workshop will introduce them to the brains of their patients, to the practice of neurofeedback to quiet fear and to the integration of neurofeedback and psychotherapy.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Describe the patterns of connectivity in the brain that underlie dissociation.
- Describe the role of affect regulation difficulties in developmental trauma.
- Provide a basic understanding of the connection between motherlessness, affect regulation and the sense of self.
- Describe how neurofeedback helps the brain learn to regulate affect.
- Plan the integration of neurofeedback into psychotherapy practice.

WS 14 Healing Heartbreak: Can Neurofeedback Increase Romantic Resiliency?

Level: Basic

Penijean Gracefire, MAMHR

This workshop will educate attendees on the neural dynamics of disrupted romantic attachment, as well as introduce and make available an sLORETA z-score training neurofeedback protocol design specifically to support romantic resiliency, the individual capacity to form healthy romantic connections after having experienced the traumatic grief or loss associated with heartbreak. The intent is to equip clinicians with another potential tool to help ease clients through the recovery process, as well as helping them to better understand the neurobiological basis for why it can be so difficult to move on.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Identify which regions in the brain, indicated by current published research, are recruited when a person is experiencing heartbreak as a result of a disrupted romantic relationship.
- Evaluate the utility of qEEG assessment and sLORETA imaging in determining whether neurofeedback could potentially facilitate a post-relationship recovery arc for a client having difficulty resolving residual romantic feelings.
- Select regions to include in an sLORETA z-score neurofeedback training protocol intended to increase romantic resiliency.

WS 15 QEEG and Neurofeedback in Patients with Epilepsy

Level: Basic

Lauren Frey, MD

Epilepsy affects an estimated 2.2 million people in the United States alone and is the nation's fourth most common neurological disorder, after migraine, stroke, and Alzheimer's disease (IOM, 2012). Seizures are caused by aberrant connections within the brain that result in hyperexcitable networks. Neurofeedback training can modify these hyperexcitable networks. Given the prevalence of seizures and epilepsy, ISNR meeting attendees can

expect to have these patients in their practices and may benefit from an in-depth review of the literature to date.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Describe the most common clinical epilepsy syndromes.
- Explain how the published data might inform choice of patient and specific protocol for seizure-focused neurofeedback training.
- Describe the common baseline findings on qEEG in patients with epilepsy.
- Name two common qEEG-based neurofeedback targets for patients with epilepsy.

WS 16 Autism, Asperger's & ADD: Overlapping Subtypes and Combined Neurofeedback

Level: Intermediate
Michael Linden, PhD

The presence of Autism has increased dramatically and yet the cause remains unclear and there is no medication that is successful. Asperger's often is misdiagnosed as ADD, ODD and/or Anxiety and mistreated with stimulating techniques. Neurofeedback has the highest benefit: harm ratio of researched treatments for ASD. The research in the areas of qEEG and Neurofeedback for ASD continues to grow and supports the information presented in this workshop.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Learn about qEEG subtypes of Autism and Asperger's and how they differ and overlap, and can lead to more accurate diagnosis.
- Use qEEG and computerized testing to guide NF protocol selection and monitoring of NF results.
- Apply Neurofeedback strategies and techniques for Autism, Asperger's and ADD/ADHD.

SATURDAY, SEPTEMBER 23, 2017, 3:15–6:30PM (additional fees apply)

WS 17 Autism and Assessment: An Integrated Approach **ISNR FOUNDATIONS**

Level: Basic
Robert Coben, PhD; Anne Stevens, PhD

This workshop will guide the understanding of assessment and treatment of autism spectrum disorders using an integrated treatment plan. The attendees will be able to appreciate the need to create a treatment plan based on their own clinical knowledge, patient symptoms, neuroscientific knowledge, neurophysiology, and a neuropsychological and cognitive profile. This workshop will guide the participant's understanding of autism and

its associated neurophysiology. A review of the application of an integrated treatment plan along with clinical demonstrations will be shown as well.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Have a working knowledge of ASD symptomology, diagnoses, and epidemiology.
- Appreciate the need for individualization of treatment.
- Understand the potential causes and neuropsychological underpinnings of Autism Spectrum Disorder.
- Recognize current treatments available for individuals with Autism Spectrum Disorder.
- Practice using information to inform neurofeedback treatment protocols.

WS 18 Quantifying the Mind to Better Understand the Brain: Noetic Analysis and the QEEG Neurophysiology

Level: Basic

Ronald Pekala, PhD

This workshop will include lecture, experiential, and demonstrational formats and will feature a PowerPoint presentation (also a paper handout of the PowerPoint presentation), published papers, and an experiential component. For the experiential component, participants will experience a hypnotic induction. Afterwards they will be able to quantify their subjective experience of hypnosis via the Phenomenology of Consciousness Inventory (PCI), a retrospectively completed self-report inventory that will assess 12 major or 14 minor dimensions of subjective experience. Via an EXCEL program downloaded from the web (www.quantifyingconsciousness.com) participants will also be able to generate a noetic "snapshot" of their mind during a sitting quietly period embedded in the hypnosis.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Describe a phenomenological, or noetic, methodology to quantify consciousness (subjective experience) in reference to short stimulus conditions via retrospective phenomenological assessment (RPA).
- Describe the methodological and statistical limits for using RPA to assess the intensities and patterns of consciousness via the Phenomenology of Consciousness Inventory (PCI).
- Determine his or her own hypnotic responsivity index via a demonstrational/ experiential exercise, illustrating how this approach can quantify phenomenological experience, in this case, in reference to an eyes closed period during hypnosis that each participant will experience.

- Demonstrate how the noetic methodology to quantify the mind, or subjective experience, can be combined with the qEEG of the BrainAvatar, to generate an approach to quantitatively define and assess the brain/mind interface.

WS 19 NeuroMeditation for ADHD, Anxiety, & Depression

Level: Intermediate
Jeff Tarrant, PhD

In this workshop, we will explore four different meditation styles based on the role of attention, intention, brainwave states and brain regions involved. Based on this understanding, we will explore how to utilize each style in combination with neurofeedback protocols for the treatment of specific mental health concerns, including ADHD, anxiety, and depression. You will receive a toolbox of tips and teaching strategies to use immediately along with both 2 channel and sLORETA protocols.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Describe the 4 different styles of meditation.
- Match client goals to specific meditation styles.
- Explain how each style fits with specific mental health concerns.
- Design neurofeedback protocols for each style.
- Identify at least 3 adjunctive strategies to assist in the neuromeditation process.

WS 20 Facing the Challenge of Using Symptom Checklists to Guide Neurofeedback Treatment

Level: Intermediate
John Demos, MA

Symptom checklists are often used to guide Neurofeedback protocols. In theory, Brain Maps based on qEEG data ought to "match" symptoms with specific training sites and bands. At times the "match" is weak. At other times, the "match" excludes sites with deviant standard deviations that are equal to or greater than the "match" sites. To meet this challenge, Jewel Report generator, an innovative graphic approach has been developed to allow clinicians to be more inclusive rather than exclusive when determining training locations. 4 databases will be compared: NeuroGuide, BrainDx, QEEGPro and Jewel.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Improve manual editing (artifacting qEEG data) skills.
- Point out differences between 4 databases (graphically).
- Explain the function of several key ROI's as well as the triple network.

- Become more inclusive in site selection when creating protocols.

WS 21 Infraslow Neurofeedback for Trauma: Targeting Autonomic Dysregulation

Level: Basic

Mark Smith, MSW; Sharie Woelke, BMR

The workshop will focus on the clinical use of ISF neurofeedback with a trauma population in order to promote success of complementary interventions, and to promote client engagement in normal life activity. This didactic presentation will categorize symptoms, identify specific biological and emotional obstacles and specify interventions. The presenters will review the use neurofeedback to improve physiological 'calm,' follow through with strategy use and enhance the effectiveness of interventions. Both presenters have worked extensively in neurofeedback and trauma recovery. They will share their individual clinical experiences through the lens of current research and case examples.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Describe the neurobiology of trauma and how it impacts upon symptom presentation.
- Identify the neural networks of trauma.
- Target commonly dysregulated neural networks PTSD with neurofeedback.
- Identify how and when neurofeedback can be used as an effective tool to progress trauma recovery.

WS 22 Decision-making Networks and the Role of Emotions

Level: Intermediate

Ronald Bonnstetter, PhD; Nancy Wigton, PhD; Thomas Collura, PhD; David Cantor, PhD

Neurotherapy clinicians and researchers are seeking better methods to train specific issues with patients who more often seek assistance in managing emotional levels not suitable for optimal adaptability to events in daily living. While some literature has proposed regions of interest that appear to play a role in emotional evaluation toward predicting emotional response, little is known how these regions are potentially linked in some forms of networks and how they communicate in a manner to predict that from a resting state, how likely they will yield an observed or reported state of anxiety and other stimuli.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:
First presentation:

- The participant will be able to recognize distinct ROI that can be selected apriori for the types of behavior being explored.

- The participant will be able to describe the steps for data reduction of EEG variables that can be used when exploring which ROIs and what frequencies may be important to optimize to minimize a predisposition to have excessive anxiety.
- Participants will be able to devise a strategy for a multivariate-based protocol.

Second Presentation:

- Articulate how the mesial and lateral aspects of the frontal lobes perform essential emotional and decision-making functions.
- Describe how specific activation patterns in the frontal lobes can be associated with particular feelings and decisions.
- Explain how systematic patterns in a grid of emotional and decision-making states can be used to describe specific responses to stimuli.
- Describe how preconscious patterns of frontal brain activation can lead to perceived emotions and decisions.

Third Presentation:

- Understand the implications of measuring frontal lobe gamma asymmetry.
- Begin their own journey to explore application of these protocols in their own clinical practice.
- Begin to understand why some individuals find certain words "emotional triggers."

WS 23 Billing, Coding, and Insurance Reimbursement: EEG Biofeedback and QEEG

Level: Advanced

Mark Trullinger, MSc; Deepti Pradhan, MSc

This workshop is vital to practitioners of neurofeedback and qEEG who are thinking about, intending to, or currently billing insurance. It will help breakdown many of the concerns and difficulties faced by those who attempt to bill insurance and teach them how to overcome coding, billing, and reimbursement barriers.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Identify appropriate CPT codes for qEEG and Neurofeedback.
- Locate and identify scope of practice for their profession in their state.
- Understand the different ways to bill insurance and considerations for deciding which way(s) to bill insurance.
- How and when to conduct an appeal after a denial and understand the importance of mental health parity.

WS 24 Integrative Technology & Phobias: Combining Bio & Neurofeedback, Virtual Reality and Transcranial Direct Current Stimulation in Reducing Anxiety

Level: Intermediate

Richard Reiner, PhD; Heather Davidson, PsyD; Scott Lloyd, PhD

Participants will be walked through the challenges of establishing an outpatient treatment program for phobic disorders using the latest technology. A brief primer on learning theory, exposure therapy, and heart rate variability will be given but the primary focus will be on demonstration and hands on experience with the equipment. Troubleshooting challenges in working with children and special populations will follow. We will also discuss how working with different cultures, sexes and age groups creates challenges in establishing rapport and following established protocols. We will also explore how techniques can be adapted to be sensitive to each individual and group.

Learning Objectives:

Based upon the content of this presentation attendees will be able to:

- Demonstrate knowledge of learning theory and exposure therapy theory.
- Utilize Heart Rate Variability biofeedback in coping exposure.
- Design and compare Virtual Reality exposure protocols for phobic disorders.
- Discuss the use of neurofeedback and tDCS in counterconditioning fear response.
- Explain challenges in working with children and special populations.

Exhibitor Educational Workshop (EWS) Descriptions to Come
(complimentary to attend; register at the vendor's exhibit booth)

SUNDAY, SEPTEMBER 24, 2017–12PM–6PM

EWS 1—BrainMaster Technologies, Inc.

EWS 2—Stens Corporation

EWS 3—Thought Technology, Ltd.

EWS 4—Lenyosys