RESEARCH UPDATE IN NEUROSCIENCE FOR NEUROSURGEONS (RUNN) COURSE
DIRECTORS AND FACULTY
October 29 – November 5, 2016

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Introduction: Welcome, Introduction, and Course Objectives

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Lecture Title: “Mechanisms of Cell Death in Neurologic Diseases”

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Lecture Title: "Philosophy of Science in Relevance to Neurosurgery" and "Deconstructing a Neurosurgical Disease: A Path to Therapy for Cerebral Cavernous Malformation"

Henry Brem, M.D.
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Harvey Cushing Professor of Neurosurgery
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Lecture Title: “Brain Tumor Therapy”

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Lecture Title: “Translational Therapeutics for Brain Tumors: From the Lab to the Clinic & Back”
Robert Dempsey, M.D.
Manucher J. Javid Professor & Chairman
Surgical Director of Multidisciplinary Stroke Program
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Lecture Title: “Inspiration and Neurosurgical Research – How to Start a Project, Grant or Paper”

FACULTY

Larry Benowitz, Ph.D.
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Lecture Title: “Rewiring the Injured CNS”

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Lecture Title: "A Matter of TRUST"

John Boockvar, M.D.
Director, Brain Tumor and Pituitary/Neuroendocrine Center
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Lecture Title: "Intra-arterial Chemotherapy After Blood Brain Barrier Disruption to Target the Glioma Stem Cell Niche"
Edward Boyden, Ph.D.
Leader, Synthetic Neurobiology Group
Associate Professor and AT&T Chair, MIT Media Lab and McGovern Institute, Departments of Biological Engineering and Brain and Cognitive Sciences
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Lecture Title: “Tools for Understanding and Repairing the Brain”

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Lecture Title: “Acute CNS Injury and Chronic Neurodegenerative Disease: Common Pathways and Therapeutic Targets”

V. Reggie Edgerton, Ph.D.
Director of the Neuromuscular Research Laboratory within the Department of Integrative Biology and Physiology, and Departments of Neurobiology and Neurosurgery, Brain Research Institute.
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Lecture Title: “Activity Dependent Mechanisms that Enhance Sensorimotor Function Following Spinal Cord Injury”

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Lecture Title: “What is Comparative Effectiveness Research, Why Should We Care About This Topic?”

Murat Günel, MD  
Nixdorff-German Professor  
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Lecture Title: “Next Generation Genomics”

Michael M. Haglund, M.D., Ph.D., FAANS, FCS (ECSA)  
Distinguished Duke Professor of Neurosurgery, Neurobiology, and Global Health,  
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Co-Director Ugandan East African Neurosurgery Training Program,  
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Lecture Title: “Academic Neurosurgery and Global Health”

Robert E. Harbaugh, MD, FACS, FAHA  
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Professor, Department of Engineering Science and Mechanics  
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Lecture Title: “Issues in Neurosurgical Clinical Research”

Neville Hogan, M.S., M.E., Ph.D.  
Professor of Mechanical Engineering, Professor of Brain and Cognitive Sciences, and  
Director of the Newman Laboratory of Biomechanics and Human Rehabilitation at  
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Massachusetts Institute of Technology  
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Lecture Title: "Robotic Tools for Scientific Neuro-Recovery"
James D. Kang, M.D.
Thornhill Family Professor of Orthopaedic Surgery
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Chairman, Department of Orthopaedic Surgery
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Lecture Title: “Novel Advances in Biological Therapies for Disc Degeneration: A Surgeon-Scientist Perspective”

Jeff W. Lichtman, M.D., Ph.D.
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Lecture Title: “Connectomics”

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Lecture Title: “Brain Circuitry and Human Behavior: What Can Go Wrong and What Can We Do About It?”

L. Dade Lunsford, M.D., F.A.C.S.
Lars Leksell Professor of Neurological Surgery
Distinguished Professor of Neurological Surgery
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Director, Center for Image Guided Neurosurgery
Director, Neurosurgery Residency Program
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Lecture: “The Expanding Role of Radiosurgery as a Part of Neurosurgery.”
**Joseph R. Madsen, M.D.**  
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Director, Neurodynamics Laboratory, Children's Hospital  
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**Lecture Title:** “Signals and Systems in the Human Brain: Water and Electricity”

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**Lecture Title:** “Glioblastoma Multiforme: Advances Beyond the Leading Edge”

**Walter Schneider, Ph.D.**  
Professor of Psychology University of Pittsburgh  
Senior Scientist LRDC Faculty Cognitive Program CNBC MRRC, BIRC, WPIC  
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**Lecture Title:** “Clinically Actionable Fiber Tracking in Neurosurgery & Traumatic Brain Injury: MRI Tract Visualizations with Quality Exceeding Microdissection”
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Lecture Title: “Advances in High Performance Brain-Controlled Prosthetics”

Marc Simard, M.D., Ph.D.
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Professor of Pathology, University of Maryland
Professor of Physiology, University of Maryland
Chief of Neurological Service, Baltimore V.A. Medical Center, Baltimore, MD
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Lecture Title: "The SUR1-TRPM4 Channel - a Critical Player in CNS Ischemia and Trauma"

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Lecture Title: “Wiring and Unwiring the Brain: Role of Glia and Immune Molecules”

Peter L. Strick, Ph.D.
Thomas Detre Professor & Chair of Neurobiology
Scientific Director, Univ. of Pittsburgh Brain Institute
Director, Systems Neuroscience Institute
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VA Senior Research Career Scientist at Pittsburgh VAMC
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Lecture Title: “Basal Ganglia and Cerebellar 'Loops' with the Cerebral Cortex: Circuits for Movement, Cognition and Affect”

Richard J. Wurtman, M.D.
Cecil H. Green Distinguished Professor, emeritus
Lecture Title: “Enhancing Synaptogenesis in Early Alzheimer’s Disease by Administering Phosphatide Precursors”