Leonard Rome

BIOGRAPHY

Leonard H. Rome, Ph.D.
Interim Director, California NanoSystems Institute
Senior Associate Dean for Research
David Geffen School of Medicine at UCLA

Leonard H. Rome is a cell biologist and biochemist who has served on the UCLA School of Medicine faculty since he joined the Department of Biological Chemistry in 1979. He became a full professor in 1988 and has been Senior Associate Dean for Research in the School of Medicine since 1997. Dr. Rome earned his B.S. in Chemistry and M.S. and Ph.D. in Biological Chemistry at the University of Michigan, Ann Arbor. He was a postdoctoral fellow at the National Institutes of Health, where he worked on lysosome biogenesis. Dr. Rome has chaired the School of Medicine Faculty Executive Committee and is actively involved in graduate and medical education. He is a recipient of the School of Medicine Award for Excellence in Education. Since becoming Senior Associate Dean for Research, he has organized a strategic plan for research in the School and spearheaded campus-wide efforts in genomics, proteomics, and computational biology. His laboratory research centers on a novel cellular organelle called a "vault" which was discovered in his laboratory. Dr. Rome is presently organizing a Nanoscience Interdisciplinary Research Team, a collaboration of disciplines including cell biologists, engineers, chemists, and structural biologists who will engineer vaults so that they may one day be used in drug delivery and as components of nano-electrical machines.
5th Annual World Congress of IBMISPS

Tuesday August 26

8:00am - 5:00pm  Sponsor Exhibitions in CNSI Lobby
Poster Sessions

Welcome and Introduction

7:30 - 8:00am  OFFICIAL WELCOME AND INTRODUCTION
By Congress Chairmen:

Babak KATEB
Founding Executive Director & Chairman of the Board of Directors IBMISPS

Jean Jacques LEMAIRE
President of IBMISPS (2008-2009)

8:00 - 8:45am  KEYNOTE SPEAKER
Leonard ROME, PH.D.
Interim Director, California NanoSystems Institute
Professor, Biological Chemistry
Senior Associate Dean of Research, David Geffen School of Medicine at UCLA

Nanoparticles for Therapeutic Drug Delivery: An Introduction to the CNSI

8:45 - 9:15am  TWO TIME ACADEMY AWARD WINNER ACTOR
Dustin HOFFMAN

RECIPIENT OF THE 2008 IBMISPS BEACON AWARD:
Dedication and Courage to increase awareness about Autism

Rain Man and Autism

9:15 - 9:35am  THE HONORABLE STATE SENATOR
Mark Ridley THOMAS
Chair of the Committee on Business, Professions and Economic Development
Chair of the Senate Select Committee on L.A. County Health Care Crisis
Chair of the California Legislative Black Caucus

Research and Healthcare in California

Scientific Session 1: Image Guided Therapy

9:35 - 9:50am  CHAIR:
Warren S. GRUNDFEST, M.D. FACS
Professor of Bioengineering & Electrical Engineering
The Henry Samueli School of Engineering & Applied Science
Professor of Surgery, UCLA - David Geffen School of Medicine

Nanotechnologies Applied to Brain Mapping: New Opportunities for Interdisciplinary Research
### Scientific Session 1: Image Guided Therapy (Cont.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Topic</th>
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<tbody>
<tr>
<td>9:50 - 10:05am</td>
<td>CO-CHAIR: John D. HEISS, M.D.</td>
<td>Real-time Guidance of Brain Tumor Surgery using Intraoperative MRI and Bipolar Cortical Mapping</td>
</tr>
<tr>
<td>10:05 - 10:20am</td>
<td>Keyvan FARAHANI, Ph.D.</td>
<td>Funding Opportunities in Image-Guided Oncological Interventions</td>
</tr>
<tr>
<td>9:50 - 10:05am</td>
<td>Sujit S. PRABHU, M.D., FRCS</td>
<td>Use of Intraoperative High-field MRI (iMRI) and Brain Mapping in the Resection of Subcortical (Deep) Brain Tumors</td>
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<tr>
<td>10:35 - 10:45am</td>
<td>Q &amp; A</td>
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<tr>
<td>10:45 - 11:00am</td>
<td>COFFEE BREAK</td>
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### Scientific Session 2: Imaging and Intraoperative Surgical Planning

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<tr>
<th>Time</th>
<th>Speaker</th>
<th>Topic</th>
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<tbody>
<tr>
<td>11:00 - 11:15am</td>
<td>KEYNOTE SPEAKER</td>
<td>The Role of Software in Image Guided Therapy</td>
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</table>

**CO-CHAIR:**
Ron KIKINIS, M.D.

**2008 IBMISPS PIONEER IN MEDICINE AWARD:**
Excellence in Research, Discovery and Education

Founding Director of Surgical Planning Laboratory
Director of The National Center for Image Guided Therapy
Professor of Radiology Department of Radiology
Brigham & Women’s Hospital,
Harvard Medical School, Boston, USA
### Scientific Session 2: Imaging and Intraoperative Surgical Planning (Cont.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Chair:</th>
<th>Presentation Title</th>
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<tbody>
<tr>
<td>11:15 - 11:30am</td>
<td><strong>Jean Jacques LEMAIRE, M.D., Ph.D.</strong></td>
<td>DTI and Tractography for DBS: Image-Guided Anatomic Approach</td>
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<td></td>
<td>University Hospital of Clermont-Ferrand, Professor of Neurosurgery (ESPRIL/INSERM), Auvergne University, France</td>
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<tr>
<td>11:30 - 11:45am</td>
<td><strong>Shoichiro ISHIHARA, M.D., Ph.D.</strong></td>
<td>Combined Approach for Cerebrovascular Surgery in a Hybrid Operating Room</td>
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<td></td>
<td>Associate Professor, Department of Neurosurgery</td>
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<td></td>
<td>Chief of Division of Endovascular Neurosurgery, Stroke Center,</td>
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<td></td>
<td>International Medical Center, Saitama Medical University, Japan</td>
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<tr>
<td>11:45 - 12:00pm</td>
<td><strong>Col. Ken CURLEY, M.D.</strong></td>
<td>Neuroscience Research at the U.S. Army Telemedicine and Advanced Technology Research Center: Opportunities for Engaging the Brain Mapping and Intraoperative Surgical Planning Communities</td>
</tr>
<tr>
<td></td>
<td>Neuroscience Portfolio Manager, Telemedicine and Advanced Technology Research Center (TATRC), U.S. Army Medical Research and Materiel Command (MRMC), Special Consultant to the Director, Center for Disaster and Humanitarian Assistance Medicine (CDHAM), Assistant Professor of Military and Emergency Medicine, Surgery and Biomedical Informatics, Uniformed Services University of the Health Sciences (USUHS)</td>
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<tr>
<td>12:00 - 12:15pm</td>
<td><strong>Michael R. CHICOINE, M.D.</strong></td>
<td>Implementation and Preliminary Clinical Experience with the Use of Ceiling Mounted Mobile High Field Intraoperative Magnetic Resonance Imaging</td>
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<tr>
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<td>Associate Professor, Department of Neurosurgery, Washington University School of Medicine</td>
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<tr>
<td>12:15 - 2:00pm</td>
<td><strong>LUNCH BREAK</strong></td>
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### Scientific Session 3: Vascular and Blood Flow Imaging and Stroke

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<thead>
<tr>
<th>Time</th>
<th>Chair:</th>
<th>Presentation Title</th>
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<tbody>
<tr>
<td>2:00 - 2:15pm</td>
<td><strong>Elizabeth BULLITT, M.D.</strong></td>
<td>Glioma and Vessel Shape as Monitored by Magnetic Resonance Angiography (MRA)</td>
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<td>Van Weatherspoon Jr. Professor of Surgery, Director of CASILab, University of North Carolina, Chapel Hill, NC</td>
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</tbody>
</table>
CO-CHAIR:  
S. Thomas CARMICHAEL, M.D., Ph.D.  
Associate Professor  
Department of Neurology  
David Geffen School of Medicine at UCLA  

*Neural Connections After Stroke As One Of The Mechanisms of Brain Repair In This Disease*

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**2:30 - 2:45pm**  
**Don M. TUCKER, Ph.D.**  
Electrical Geodesics, Inc.  
Department of Psychology and NeuroInformatics Center, University of Oregon  

*MR-Constrained Dense Array EEG for Estimating Neural Sources of Epileptic Seizures in Neurosurgical Planning*

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**2:45 - 3:00pm**  
**Wang ZHAN, Ph.D.**  
Assistant Professor  
Center for Imaging of Neurodegenerative Diseases  
Department of Radiology  
University of California, San Francisco (UCSF)  
VA Medical Center  

*Capture White Matter Degeneration with Diffusion MRI and Multimodal Analysis*

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**3:00 - 3:15pm**  
**Aaron FILLER, M.D., Ph.D.**  
Medical Director of Neurography Institute  

*Image guided systems Impact of Image Cycle Time in Minimal Access Nerve Surgery and Interventional MRI*

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**3:15 - 3:30pm**  
**Q & A**

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**3:30 - 4:00pm**  
**TEA RECESS**

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**Scientific Session 4: NEW HORIZON**

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**4:00 - 4:15pm**  
**CHAIR: Farzad MASSOUDI, M.D.**  
Assistant Clinical Professor of Neurological Surgery, UCLA School of Medicine  

*Future of Neurosurgery*
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenter</th>
<th>Institution</th>
<th>Topic</th>
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<tbody>
<tr>
<td>4:15 - 4:30pm</td>
<td><strong>Emerging Concepts in Neuroimaging: Animal Models, Plasticity and Circuitry</strong></td>
<td><strong>Elaine L. BEARER, M.D., Ph.D.</strong></td>
<td>Department of Pathology and Laboratory Medicine Warren Alpert Medical School of Brown University</td>
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<tr>
<td>4:30 - 4:45pm</td>
<td><strong>Brain Spatial Normalization: Indexing the Mouse Brain Library</strong></td>
<td><strong>Jonathan NISSANOV, Ph.D.</strong></td>
<td>Department of Neurobiology &amp; Anatomy Drexel University College of Medicine</td>
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<tr>
<td>4:45 - 5:00pm</td>
<td><strong>Electronic Nose</strong></td>
<td><strong>Margret Amy RYAN, Ph.D.</strong></td>
<td>NASA/Jet propulsion Laboratory (JPL)</td>
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<tr>
<td>5:00 - 5:15pm</td>
<td><strong>Post Traumatic Stress Disorder in the 21st Century: Deconstructing the Historic Scarlet Letter</strong></td>
<td><strong>Andrea A. SCOTT, J.D.</strong></td>
<td>President and CEO of Bioethics USA, Inc</td>
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<tr>
<td>5:15pm</td>
<td><strong>TEA RECESS</strong></td>
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</table>
His Majesty Reza Pahlavi

BIOGRAPHY

Since the establishment of the clerical regime in Iran and the passing of his father, the late Shah of Iran, Reza Pahlavi has been a leading and vocal advocate of the principles of freedom, democracy and human rights for his compatriots. He is an international speaker and the author of “Past and the Future” published in June 2000 in Persian, and “Winds of Change: The future of Democracy in Iran” published in 2002.

Reza Pahlavi has lectured in many respected academic institutions, including the Washington Institute of Foreign Affairs, Yale University, Harvard Business School, Cornell, George Town University, Hudson Institute, University of Nebraska, and Management Centre Innsbruck of Austria. His topics included, Iran and the future of the Middle East and Peace and Stability in the Middle East and Beyond.

His articles have been published in various reputable newspapers and magazines, including the Washington Post, Newsweek International, Le Figaro, The Wall Street Journal, and the New Republic.

In 1978, Reza Pahlavi, then Crown Prince of Iran, left his homeland to complete his higher education in the United States. An accomplished jet fighter pilot, Reza Pahlavi completed the United States Air Force Training Program at the former Reese Air Force Base in Lubbock, Texas. He is a Political Science graduate of the University of Southern California.

Soon-Shiong, M.D.

BIOGRAPHY

Dr. Soon-Shiong became chairman and chief executive officer of Abraxis BioScience in April 2006. Dr. Soon-Shiong previously served APP as president since July 2001 and chief executive officer and chairman of the board of directors from its inception in March 1996. Since June 1994, Dr. Soon-Shiong also served as president, chief financial officer and a director of American BioScience, Inc. From June 1994 to June 1998, he served as chief executive officer and chairman of the board of directors of VivoRX, Inc., a biotechnology company. Dr. Soon-Shiong is named as a co-inventor on over 40 issued U.S. and foreign patents and is a fellow of the American College of Surgeons and the Royal College of Physicians and Surgeons of Canada. Dr. Soon-Shiong holds a degree in medicine from the University of the Witwatersrand and a M.Sc. in science from the University of British Columbia.
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00am - 5:00pm</td>
<td>Sponsor Exhibitions in CNSI Lobby Poster Sessions</td>
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<tr>
<td>9:00am - 12:30pm</td>
<td>Board of Director’s Meeting</td>
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<tr>
<td>12:40 - 1:00pm</td>
<td><strong>Keynote Speaker:</strong> Warren S. GRUNDFEST, M.D. FACS</td>
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<td>Professor of Bioengineering &amp; Electrical Engineering</td>
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<td>The Henry Samueli School of Engineering &amp; Applied Science</td>
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<td>Professor of Surgery, UCLA- David Geffen School of Medicine</td>
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<td></td>
<td><strong>Interdisciplinary Medicine: The Way of the Future</strong></td>
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<td>12:50 - 1:00pm</td>
<td><strong>Keynote Speaker:</strong> His Majesty Reza PAHLAVI</td>
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<td>1:00 - 1:40pm</td>
<td><strong>Keynote Speaker:</strong> Patrick Soon-SHIONG, M.D.</td>
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<td></td>
<td>Chairman of the Board of Directors and</td>
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<td>Chief Executive Officer of</td>
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<td>ABRAXIS BIOSCIENCE</td>
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<td></td>
<td><strong>The Need for Interdisciplinary Science to Effect Meaningful Clinical Change</strong></td>
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<td>1:40 - 1:45pm</td>
<td>Q &amp; A</td>
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<td>1:45 - 2:00pm</td>
<td><strong>Coffee Break</strong></td>
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### Scientific Session 5: New Frontiers in Medicine (I) Technology and Nanomedicine

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<th>Time</th>
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<tr>
<td>2:00 - 2:15pm</td>
<td><strong>Chair:</strong> Babak KATEB</td>
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<td></td>
<td>Founding Executive Director</td>
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<td>Chairman of the Board of Directors IBMISPS</td>
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<td></td>
<td><strong>Internalization of MWCNTs by Microglia:</strong></td>
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<td></td>
<td>Possible Application in Immunotherapy of Brain Tumors</td>
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<td>2:15 - 2:30pm</td>
<td><strong>Co-Chair:</strong> Shouleh NIKZAD, Ph.D.</td>
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<td></td>
<td>Head of Nanoscience and Advanced Detector Arrays Group,</td>
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<td></td>
<td>Jet Propulsion Laboratory (JPL)</td>
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<td></td>
<td><strong>UV Technology Imaging</strong></td>
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</table>
### Scientific Session 5: **New Frontiers in Medicine (I)**

**Technology and Nanomedicine (Cont.)**

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<th>Time</th>
<th>Presenter</th>
<th>Affiliation</th>
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<tr>
<td>2:30 - 2:45pm</td>
<td><strong>Behnam BADIE, M.D.</strong></td>
<td>Director of Brain Tumor Program and</td>
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<td>Director of Neurosurgery Department</td>
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<td>City of Hope National Cancer Center</td>
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<td></td>
<td></td>
<td><strong>Nanotechnology and Immunotherapy of Brain Cancers</strong></td>
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<td>2:45 - 3:00pm</td>
<td><strong>T. K. HSIAI, M.D., Ph.D.</strong></td>
<td>Director of Cardiovascular Engineering Research Core</td>
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<td>Associate Professor</td>
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<td></td>
<td>Department of Biomedical Engineering &amp;</td>
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<td>Division of Cardiovascular Medicine</td>
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<td>University of Southern California</td>
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<td><strong>Shear Stress and Vascular Oxidative Stress from Micro to Nanotechnologies</strong></td>
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<td>3:00 - 3:15pm</td>
<td><strong>Michael E. HONEK, Ph.D.</strong></td>
<td>Senior Member of Technical Staff</td>
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<td>Nano and Micro Systems (NAMS)</td>
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<td>In-Situ Instrument Systems Section</td>
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<td>California Institute of Technology</td>
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<td><strong>From Brain Mapping to Space Exploration - What can NASA engineers learn</strong></td>
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<td>from neurobiologists about building spacecraft?</td>
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<td>3:15 - 3:30pm</td>
<td>Q &amp; A</td>
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<td>3:30 - 4:00pm</td>
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### Scientific Session 6: **New Frontiers in Medicine (II)**

**Genetic Imaging and Drug Delivery**

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<th>Presenter</th>
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<tr>
<td>4:00 - 4:15pm</td>
<td><strong>CHAIR:</strong> <strong>Mike CHEN, M.D., Ph.D.</strong></td>
<td>Assistant Professor,</td>
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<td></td>
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<td>Department of Neurosurgery</td>
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<td>City of Hope National Cancer Center</td>
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<td><strong>CO-CHAIR:</strong> <strong>Pedro R. LOWENSTEIN, M.D., Ph.D.</strong></td>
<td>Director</td>
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<td>Board of Governors</td>
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<td>Gene Therapeutics Research Institute</td>
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<td>Bram and Elaine Goldsmith</td>
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<td>Chair in Gene Therapeutics</td>
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<td>Cedars-Sinai Medical Center</td>
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<tr>
<td></td>
<td></td>
<td>Professor of Medicine, and Pharmacology</td>
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<td></td>
<td></td>
<td>Departments of Medicine, and Molecular and Medical Pharmacology</td>
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<td>David Geffen School of Medicine UCLA</td>
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<td><strong>Immunological Synapses: the Anatomical Substrate Mediating Anti-Viral</strong></td>
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<td>and Anti-Tumor Responses in the Brain</td>
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Sunday, August 26

Scientific Session 7: **New Frontiers in Medicine (III)**

**Drug Delivery and Nanomedicine**

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<tbody>
<tr>
<td>2:00 - 2:15pm</td>
<td><strong>William M. GRANER, Ph.D.</strong></td>
<td>Senior Member of Technical Staff</td>
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<td>Nano and Micro Systems (NAMS)</td>
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<tr>
<td>2:15 - 2:30pm</td>
<td>Q &amp; A</td>
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<td>2:30 - 3:00pm</td>
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Monday, August 27

Scientific Session 8: **New Frontiers in Medicine (IV)**

**Gene Therapy and Immunology**

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<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>2:00 - 2:15pm</td>
<td><strong>John R. SHORTLE, M.D., Ph.D.</strong></td>
<td>Director</td>
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<td>Genetics Institute for Cancer Research Include</td>
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<td>2:15 - 2:30pm</td>
<td>Q &amp; A</td>
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<td>2:30 - 3:00pm</td>
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Tuesday, August 28

Scientific Session 9: **New Frontiers in Medicine (V)**

**Imaging and Nanotechnology**

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<thead>
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<th>Presenter</th>
<th>Affiliation</th>
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<tbody>
<tr>
<td>2:00 - 2:15pm</td>
<td><strong>Sara J. AXELROD, M.D., Ph.D.</strong></td>
<td>Director</td>
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<td></td>
<td>California Institute of Technology</td>
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<tr>
<td>2:15 - 2:30pm</td>
<td>Q &amp; A</td>
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<td>2:30 - 3:00pm</td>
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<tr>
<td>Time</td>
<td>Speaker</td>
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<tr>
<td>4:15 - 4:30pm</td>
<td>Bong Seop LEE, Ph.D.</td>
<td>Nanoprodugs: A New Paradigm in the Prodrug Strategy</td>
</tr>
<tr>
<td>4:30 - 4:45pm</td>
<td>Krystof BANKIEWICZ, M.D., Ph.D.</td>
<td>Imaging of Gene Transfer in Parkinson's Disease</td>
</tr>
<tr>
<td>4:45 - 5:00pm</td>
<td>Mirjana MALETIC-SAVATIC, M.D., Ph.D.</td>
<td>Metabolomics and Magnetic Resonance Spectroscopy: A New Approach for Biomarker Discovery</td>
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<tr>
<td>5:00pm</td>
<td>Q &amp; A</td>
<td>TEA RECESS</td>
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Scientific Session 6: **New Frontiers in Medicine (II)**

**Genetic Imaging and Drug Delivery (Cont.)**

5th Annual

World Congress of IBMISPS

Wednesday August 27
Christian Macedonia, M.D.

BIOGRAPHY

LTC(P) Christian Macedonia M.D. is a US Army physician and surgeon, currently serving as the Chief of Research Operations at the Telemedicine and Advanced Technology Research Center (TATRC) at Fort Detrick, Maryland. Before assuming his current position, Dr. Macedonia served in a variety of roles throughout the military and civilian healthcare system. He led an ambulance platoon in Germany during the Cold War. He worked as an Army scientist and the medical primary investigator in the development of the 3D ultrasound for trauma care.

Dr. Macedonia provided medical and scientific support to two successful Everest climbing teams in 1998 and 1999 while doing a research fellowship at the National Institutes of Health. He dove 12,800 ft. in a Mir submersible to the RMS Titanic in 2000 and taught high altitude survival skills to special operating forces in 2001 and 2002.

Dr. Macedonia was the Medical Director for Women’s and Children’s Health at the National Naval Medical Center in Bethesda and served a year as the Chief of Clinical Staff of the 115th Combat Support Hospital in the Anbar Province of Iraq where he was awarded the Bronze Star.

In addition to his current duties, LTC Macedonia serves on the secretariat of the Defense Science Board. He assumes new duties at the Pentagon as the Medical Sciences Advisor to the Joint Chiefs of Staff in September. Dr Macedonia is the recipient of numerous military and civilian awards, including the Heroes of TRICARE award given to the Department of Defense’s most outstanding health professionals and he was co-recipient of the Discover Magazine Award in Science and Technology.
Welcome and Introduction

8:00 - 8:30am
OFFICIAL WELCOME AND INTRODUCTION
By Chairmen:
Stephan ERBERICH &
Babak KATEB

8:30 - 9:00am
KEYNOTE SPEAKER
Christian MACEDONIA, M.D.
Lieutenant Colonel, Medical Corps, US Army
Chief of Research Operations
Telemedicine and Advanced Technology Research Center
U.S. Army Medical Research and Materiel Command (MRMC)
Associate Professor of Ob/GYN,
Military and Emergency Medicine Uniformed Services University

Brain Mapping and Systems Biology

Scientific Session 7: Multi-Modality Imaging

9:00 - 9:15am
CHAIR:
Alexandra GOLBY, M.D.
Assistant Professor of Neurosurgery,
Associate Surgeon, Brigham and Women’s Hospital
Director of Image Guided Neurosurgery,
Brigham and Women’s Hospital,
Harvard Medical School

Improving Pre-operative Language Lateralization and Localization Using Advanced fMRI Analysis

9:15 - 9:30am
Manbir SINGH, Ph.D.
Professor of Radiology and Biomedical Engineering,
Founding Director of Biomedical Imaging & Telemedicine Program,
Director of ADRC Neuroimaging Core
University of Southern California

Quantitative DTI with Applications to Traumatic Brain Injury and Alzheimer Disease

9:30 - 9:45am
CO-CHAIR:
Aaron COHEN, M.D. M.S.
Assistant professor of neurosurgery
Indiana University School of Medicine

Use of Diffuse Tensor Imaging in Surgical Planning and Resection of Insular Gliomas
### Scientific Session 7: Multi-Modality Imaging (Cont.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Topic</th>
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<tbody>
<tr>
<td>9:45 - 10:00am</td>
<td>Ramon DIAZ-ARRASTIA, M.D., Ph.D.</td>
<td>Multimodality Magnetic Resonance Imaging Biomarkers of Traumatic Axonal Injury</td>
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<tr>
<td>10:00 - 10:15am</td>
<td>Guido GERIG, Ph.D.</td>
<td>Analysis of Brain White Matter Properties and Fiber Tracts Via Diffusion-Weighted MRI: Challenges and Potential Benefits</td>
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<tr>
<td>10:15 - 10:30am</td>
<td>Q &amp; A</td>
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<td>10:30 - 11:00am</td>
<td>LUNCH BREAK</td>
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### Scientific Session 8: Global Health Grid: Toward Electronic Medical Records and Advanced Telemedicine

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<tr>
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<tbody>
<tr>
<td>11:00 - 11:20am</td>
<td>Johan MONTAGNAT, Ph.D.</td>
<td>Neuroscience Discovery with Grid Computing</td>
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<tr>
<td>11:20 - 11:40am</td>
<td>Michael WILDE, B.Sc.</td>
<td>Swift Supercomputing Analysis in CNARI: Computational Neuroscience and Aphasia Research Infrastructure</td>
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<tr>
<td>11:40 - 12:00pm</td>
<td>James PHILBIN, Ph.D.</td>
<td>The Design of a DICOM Compatible Storage Grid with ILM</td>
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<tr>
<td>12:00 - 12:15pm</td>
<td>Q &amp; A</td>
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<td>12:15 - 2:00pm</td>
<td>LUNCH BREAK</td>
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<td>Time</td>
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<td>2:00 - 2:15pm</td>
<td>CHAIR:</td>
<td><strong>David MOORE, M.D.</strong>&lt;br&gt;Deputy Director for Research, Defense and Veterans Brain Injury Center, Walter Reed Army Medical Center</td>
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<tr>
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<td><strong>Computational Biology, Primary Blast Injury and the Central Nervous System</strong></td>
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<td>2:15 - 2:30pm</td>
<td>CO-CHAIR:</td>
<td><strong>Amir VOKSHOOR, M.D.</strong>&lt;br&gt;Co-founder of Neurosurgical &amp; Spine Institute&lt;br&gt;Diagnostics and International Spine Center Institute&lt;br&gt;St. Johns Medical Center&lt;br&gt;West Hills Medical Center</td>
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<td><strong>Neurosurgical Repair in Cervical Trauma</strong></td>
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<td>2:30 - 2:45pm</td>
<td><strong>Elaine ALEXANDER, M.D., Ph.D.</strong></td>
<td>Cenomed BioSciences, LLC&lt;br&gt;Vice President Clinical Development&lt;br&gt;Chief Medical Officer (CMO)</td>
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<td><strong>The Development of Multi-Function Therapeutics for PTSD and PTE in War Fighters Injuries (TBI)</strong></td>
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<td>2:45 - 3:00pm</td>
<td><strong>Michael J. ROY, M.D., M.PH.</strong></td>
<td>Colonel, Medical Corps, U.S. Army&lt;br&gt;Director, Division of Military Internal Medicine Professor of Medicine Uniformed Services University of the Health Sciences</td>
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<td><strong>ViRTICo: Virtual Reality Therapy and Imaging in Combat Veterans with PTSD and Mild TBI</strong></td>
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<td>3:00 - 3:15pm</td>
<td><strong>Akemi TOMODA, M.D., Ph.D.</strong></td>
<td>Department of Psychiatry, Harvard Medical School, Developmental Biopsychiatry Research Program, McLean Hospital, Belmont, Child Developmental Sociology, Faculty of Medical and Pharmaceutical Sciences, Kumamoto University, Kumamoto, Japan</td>
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<td><strong>Prefrontal Cortex Involvement as Adverse Effects of Harsh Corporal Punishment in Childhood on Brain Gray Matter Volume</strong></td>
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<td>3:15 - 3:30pm</td>
<td><strong>Q &amp; A</strong></td>
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<td>3:30 - 4:00pm</td>
<td><strong>TEA RECESS</strong></td>
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| 4:00 - 4:15pm | CHAIR:  
  **E. Duco JANSEN, Ph.D.**  
  Associate Professor of Biomedical Engineering  
  Department of Biomedical Engineering  
  Vanderbilt University School of Engineering  
  **Optical Stimulation in the CNS** |
| 4:15 - 4:30pm | **Jonathan NISSANOV, Ph.D.**  
  Associate Professor,  
  Department of Neurobiology & Anatomy  
  Drexel University College of Medicine  
  **Cryoplane Fluorescence Microscopy** |
| 4:30 - 4:45pm | CO-CHAIR:  
  **Nathalie Y.R. AGAR, Ph.D.**  
  Instructor in Surgery, Department of Neurosurgery  
  Brigham and Women’s Hospital, Harvard Medical School  
  **Mass Spectrometry Approaches to Intraoperative Surgical Planning** |
| 4:45 - 5:00pm | **Mark BENDETT, Ph.D.**  
  Director of Medical Products  
  Aculight Corporation  
  and  
  **Jonathon WELLS, Ph.D.**  
  Aculight Corp  
  Senior Scientist  
  **Infrared Nerve Stimulation: A Selective Stimulus for Neural Mapping, Surgical Guidance, and Therapy** |
| 5:00pm | Q & A  
  TEA RECESS |
| 6:00-9:00pm | COCKTAIL AWARD EVENT |
The California NanoSystems Institute (CNSI) is an integrated research center — operating jointly at UCLA and UC Santa Barbara — whose mission is to foster interdisciplinary collaborations for discoveries in nanosystems and nanotechnology, to train the next generation of scientists, educators and technology leaders, and to facilitate partnerships with industry that will fuel economic development and the social well-being of California, the United States and the world.

The CNSI was established in 2000 with $100 million in funding from the state of California and an additional $250 million in federal research grants and industry funding. Scientists in the areas of biology, chemistry, biochemistry, physics, mathematics, computational science, and engineering are measuring, modifying and manipulating the building blocks of our world — atoms and molecules. These scientists benefit from an integrated laboratory culture enabling them to conduct dynamic research at the nanoscale, leading to significant breakthroughs in the areas of health, energy, environment and information technology. For additional information, visit www.cnsi.ucla.edu.
Cocktail Award Schedule of Events:

6:00 - 6:10pm  INTRODUCTION:  
Babak KATEB  
Chairman of the Board of Directors, IBMISPS-Foundation  
Founding Executive Director, IBMISPS  
Managing Editor IBMISPS-NeuroImage  
Visiting Researcher California Institute of Technology

6:10 - 6:30pm  KEYNOTE SPEECH:  
Herb SCHULTZ  
Herb Schultz, of West Hollywood, has been appointed Senior Health Policy Advisor for the Office of the Governor in the state of California. Most recently, he has served as Vice President of Government Programs for McKesson Health Solutions, where he oversaw disease management and nurse advice government Medicaid and Medicare programs. Schultz previously was Acting Director of the California Employment Development Department and Acting Secretary and Undersecretary for the Labor and Workforce Development Agency. Prior to that, he was Deputy Director of External Affairs for the Department of Managed Health Care and served as Director of the Advisory Committee on Managed Health Care.

6:30 - 7:00pm  Award Presentation

7:30 - 8:00pm  Break

8:30 - 9:00pm  VIP Tour of UCLA’s CNSI

9:00pm  Closing Remarks

Beacon Award for Courage and Dedication:  
The Beacon Award is presented to individuals who have demonstrated extraordinary courage and dedication for increasing awareness about neurological diseases, and for patients and their families who have exceeded expectations in fighting a neurological disorder with unprecedented courage. The Beacon Award identifies remarkable individuals who set the highest standards for increasing awareness of, and fighting, neurological diseases.

Pioneer in Medicine:  
The Pioneer in Medicine Award is presented to individuals who have significantly contributed to the scientific advancement in the fields of medicine and image guided therapy through a multi-disciplinary approach. Their groundbreaking contribution has made development of state-of-the-art technology and scientific discovery a reality.

Pioneer in Healthcare Policy:  
The Pioneer in Healthcare Policy Award is presented to lawmakers who have demonstrated visionary and cross-disciplinary approaches to introducing laws that have contributed to the advancement of science, technology, education, and medicine. They have paved the way to better integration of such advancements in other fields, like medicine and neuroscience. These lawmakers champion better healthcare for all.

Pioneer in Technology:  
The Pioneer in Technology Award is presented to the trail blazing companies and their CEOs/presidents who have facilitated the development of pioneering technologies through interdisciplinary approaches that have impacted diagnostics, treatment, and healthcare delivery in unprecedented ways.

Past Award Recipients:
2006: Warren Grundfest, Alim Louis Benabid
2007: Beacon Award, Benham Badie; Medicine, Richard Frakowiack, Arthur W. Toga, John Mazziotta; Technology, Steve Rusckowski; Healthcare Policy, Speaker Nancy Pelosi, Senator Edward Kennedy
Dustin Lee Hoffman, born August 8, 1937, is a two-time Academy Award, six-time Golden Globe, three-time BAFTA and Emmy Award actor. Born in Los Angeles of a jazz pianist mother and prop supervisor/set decorator father, he graduated from Los Angeles High School. He began acting at the Pasadena Playhouse with fellow actor, Gene Hackman after a brief college term at Santa Monica City college. Hoffman followed Hackman to New York and the two worked odd jobs as they continued to improve their craft. During these years, Hoffman shared a small apartment with actor Robert Duval.

He studied at the famous Actors Studio and became a method actor. Through the early sixties he made numerous appearances on television and appeared in commercials, and in theatrical performances. Between acting jobs he taught acting at community colleges and directed off-Broadway productions.

In 1966, director Mike Nichols was casting for ‘The Graduate’ and eventually auditioned and hired Mr. Hoffman, who received an Academy Award nomination for his role in the film. His next films brought critical success and another Academy nomination including Midnight Cowboy and Little Big Man. He continued his string of successes in the next decade with such films as Papillon, Straw Dogs and Lenny. Less than two years after the Watergate scandal, Hoffman appeared in ‘All the Presidents Men’ with Robert Redford.

His movie successes continued as he explored comedy in ‘Tootsie’, reprising his early real life in New York as a struggling actor/director, and drama with in evocative role of a caring, divorced father in Kramer vs. Kramer. He has been considered for a number of roles including Michael Coreleone in the Godfather and Richard Decker in Blade Runner. In Rain Man, he appeared as an autistic savant opposite Tom Cruise. The film was a huge success and brought him his second Oscar.

When a family friend was diagnosed with Type I diabetes, Mr. Hoffman and his wife, Lisa Gottsegen, became involved with the Juvenile Diabetes Research Foundation, hosting its first fund raising event. The foundation’s research efforts became embroiled in a larger controversy over the use of stem cells which Mr. Hoffman defended. "What this research has more to do with is not when life begins but when life ends,” Mr. Hoffman is quoted as saying. “This research may one day eliminate these diseases from ending people’s lives prematurely.”

He is the father of six children and has two grandchildren. He is politically active and has long supported the Democratic Party.
Dr. Kikinis is the founding Director of the Surgical Planning Laboratory, Department of Radiology, Brigham and Women’s Hospital, Harvard Medical School, Boston, MA, and a Professor of Radiology at Harvard Medical School. This laboratory was founded in 1990.

Dr. Kikinis is the Principal Investigator of the National Alliance for Medical Image Computing (NA-MIC, a National Center for Biomedical Computing, an effort which is part of the NIH Roadmap Initiative), and of the Neuroimage Analysis Center (NAC a National Resource Center funded by NCRR). He is also the Research Director of the National Center for Image Guided Therapy (NCIGT), which is jointly sponsored by NCRR, NCI, and NIBIB.

During the mid-80’s, Dr. Kikinis developed a scientific interest in image processing algorithms and their use for extracting relevant information from medical imaging data. Since then, this topic has matured from a fairly exotic topic to a field of science. This is due to the explosive increase of both the quantity and complexity of imaging data. Dr. Kikinis has led and has participated in research in different areas of science. His activities include technological research (segmentation, registration, visualization, high performance computing), software system development (most recently the 3D Slicer software package), and biomedical research in a variety of biomedical specialties. The majority of his research is interdisciplinary in nature and is conducted by multidisciplinary teams. The results of this research have been reported in a variety of peer-reviewed journal articles. He is the author and co-author of more than 260 peer-reviewed articles.

Before joining Brigham & Women’s Hospital in 1988, he trained as a resident in radiology at the University Hospital in Zurich, and as a researcher in computer vision at the ETH in Zurich, Switzerland. He received his M.D. degree from the University of Zurich, Switzerland, in 1982.
Arnold Schwarzenegger is currently the 38th Governor of California. He was born on July 30, 1947 in Thal, Austria just outside the Styrian capital of Graz. Son of a local police chief he was raised in a strict environment of rules and according to him “the rod was not spared” when he disobeyed his parents. Early childhood friends remember him as ‘cheerful, good-natured and exuberant’. He attend a Roman Catholic church every Sunday.

At age 14 he chose barbells over soccer and thus a career in body building began. He studied psychology at age 15 to develop his mind and its control over his body. While his father wanted a career for him in law enforcement and his mother favored a trade school, he spent much of teen years in Graz at the gymnasium or movie theatres. There he saw films with Johnny Weissmuller, Tarzan, and Steve Reeves, Hercules, and had an inclination of a career path from body building to acting. He remembers that the first film he saw with his father in a movie theatre starred John Wayne.

After a mandatory year’s service in the Austrian Army, he pursued titles and awards in the body building world. Successive wins of Mr. Olympia and Mr. Universe titles lead him to Hollywood where he sought to use his physique in films much like Weismuller and Reeves. In ‘Pumping Iron’, his breakout film, Mr. Schwarzenegger displays a winning smile and tremendous mental and physical strength. With ‘Conan the Destroyer’ he found a role in which he could develop a character where his strong European accent wouldn’t hinder him. The film’s success opened the doors for a series of films. In 1984 he starred in the Terminator, a science fiction thriller and the name and role have stuck with him since. He followed up with a rapid succession of box offices successes including in each of the following years with Commando, Predator, the Running Man and Red Heat.

Mr. Schwarzenegger began to alternate between comedies and action films starring in Twins and Total Recall, Kindergarten Cop and Terminator 2: Judgement day. He continued this formula through the next decade with a string of box office successes.

Mr. Schwarzenegger is a supporter of the Republican Party and successfully ran for the office of Governor of California in a recall election in 2003. Mr. Schwarzenegger has been an advocate of exercise for children and was chairman of the President’s Council on Physical Fitness and Sports from 1990 to 1993. As governor he signed a bill creating the nation’s first cap on greenhouse gas emissions. The law set new regulations on the amount of emissions utilities, refineries and manufacturing plants are allowed to release into the atmosphere. Schwarzenegger also signed a second global warming bill that prohibits large utilities and corporations in California from making long-term contracts with suppliers who do not meet the state’s greenhouse gas emission standards.

He is married to TV journalist Maria Shriver and is the son-in-law to Eunice Kennedy Shriver. Together they have four children.
Mark L. Vachon is president and CEO of Global Diagnostic Imaging, a position he has held since January 2006.

Mr. Vachon began his GE career in 1982 as a member of the Financial Management Program in Schenectady, New York. After assignments at Corporate Research and Development, Large Motor and Generator, International Apparatus and Engineering Services, Mark joined the Corporate Audit Staff in 1985. Mr. Vachon served on the audit staff for five years, eventually becoming executive audit manager.

In 1990 he accepted the position of manager of International Finance at GE Appliances. Over the next several years, Mr. Vachon had assignments at Appliances as manager of the Process Improvement Group, general manager of Retail Sales and Market Development, and general manager of Consumer Satisfaction. In December 1995 he assumed the role of director of finance at GE Plastics Europe, based in Bergen op Zoom in the Netherlands. After a brief time as GE Plastic’s Global Quality Leader, Mr. Vachon was promoted to vice president of Investor Relations with GE Corporate in April 1998. In July 1999 he was appointed a GE company officer, and in January 2002 he was appointed executive vice president and chief financial officer of NBC. The following year he was appointed to executive vice president and chief financial officer at GE Healthcare.

Mr. Vachon graduated from Northeastern University in Boston with a bachelor’s degree in finance. He resides in the Waukesha, Wisconsin, area with his wife Karen and their two children.
Ron von Jako, M.D.

BIOGRAPHY

Before joining GE Healthcare - Surgery in 2002, Dr. von Jako had been Senior Product and Clinical Development Director with Visualization Technology, Inc. While at VTI and in collaboration with GEHC, Dr. von Jako was responsible for creating the product development and evidence-based strategies for orthopedic and neurosurgical applications.

He launched the first commercial electromagnetic navigation platform integrated with GE C-arm fluoroscopy targeting spinal degenerative disc disease, trauma, and deformity procedures. Prior to VTI, Dr. von Jako was co-founder of Atls, Inc where he co-invented a patented electrosurgical device used for the excision and removal of various lesions through mini-open and laparoscopic procedures. Previous to this, Dr. von Jako served as VP of Clinical Affairs for Atlantis Surgical where he created novel fiberoptic and integrated endoscopic-retractor technologies. Here he directed clinical research teams supporting multinational surgical projects that resulted in new trends and standards that enabled some of the first least invasive concepts and access approaches for cardio-vascular, orthopedic and spinal fusions. Dr. von Jako has consulted for a number of different companies including SpineTech, Boston Scientific, US Surgical, Kaiser Aerospace, Medtronic and Smith and Nephew for minimally invasive approaches to surgery. His experience has included designing products and running trials for numerous surgical indications.

Currently serves as Medical Director for GEHC Surgery/OEC providing medical perspectives on risk assessments to further strengthen the focus on patient safety, drive benefits of surgical products thru evidence generation, and interacts between external experts and internal GE cross-functional areas to expand upon innovative technologies. Dr. Von Jako received his medical degree at 24 from the University of Pecs, School of Medicine and Health Sciences, Pecs Hungary and trained in surgery. He was awarded a Fellowship in Minimally Invasive Surgical Research from Dartmouth - Lahey Clinic Medical Center in Massachusetts.

He is currently a PhD Candidate in Experimental Surgery. Some professional affiliations and awards include the Mass Medical Society, Spine Arthroplasty Society, American Academy of Otorhinolaryngology - Head and Neck Surgery and American College of Surgeons Scientific Exhibition awards.
## Welcome and Introduction

### OFFICIAL WELCOME AND INTRODUCTION

By Chairmen:

Jean Jacques LEMAIRE and Babak KATEB

### KEYNOTE SPEAKER

**Ron VON JAKO, M.D.**

Chief Medical Officer  
Surgical Development Leader  
GE Healthcare Surgery

*Application of Electromagnetic Image Guidance in Spine Surgery*

## Scientific Session 11: Deep Brain Stimulation and Human Brain Machine Interface - Session 1

### CHAIR:

**Michael S. OKUN, M.D.**

Adelaide Lackner Associate Professor of Neurology  
Co-Director Movement Disorders Center  
Department of Neurology, McKnight Brain Institute  
Medical Director National Parkinson Foundation

*Sorting out Verbal Fluency/Cognitive Issues in Deep Brain Stimulation*

### 9:15 - 9:30am

**Cameron MCINTYRE, Ph.D.**

Assistant Staff, Cleveland Clinic Foundation,  
Department of Biomedical Engineering,  
Assistant Professor,  
Department of Molecular Medicine  
Cleveland Clinic Lerner College of Medicine - CWRU

*Deep Brain Stimulation Surgical Navigation Using Neurostimulation Models*

### 9:30 - 9:45am

**William SHAIN, Ph.D.**

Research Scientist,  
Wadsworth Center, Nervous System Disorders  
Associate Professor,  
School of Public Health,  
Biomedical Sciences and Environmental Health Sciences

*What Can We Learn from Pathology and Imaging Post-Mortem DBS Tissue*
### Scientific Session 11: Deep Brain Stimulation and Human Brain Machine Interface - Session 1 (Cont.)

**9:45 - 10:00am**  
**CO-CHAIR:**  
**Michele TAGLIATI, M.D.**  
Associate Professor of Neurology  
Division Chief, Movement Disorders  
Mount Sinai School of Medicine  

*The Safety of MRI in Deep Brain Stimulation: A Review of National Parkinson Foundation Centers of Excellence*

**10:00 - 10:15am**  
**Felice SUN, Ph.D.**  
Clinical Scientist  
NeuroPace  

*Responsive Neurostimulation for Epilepsy*

**10:15 - 10:30am**  
**Q & A**

**10:30 - 11:00am**  
**COFFEE BREAK**

### Scientific Session 12: Robotics, Brain Implants and Human Brain Machine Interface - Session 2

**11:00 - 11:15am**  
**CHAIR:**  
**Geoffrey S. YOUNG M.D.**  
Director of MR Neuroimaging,  
Brigham and Women’s Hospital  
Department of Radiology  
Instructor in Radiology,  
Harvard Medical School  

*Susceptibility Weighted Imaging Enhancement of Standard 3 Tesla T1-weighted SPGR Surgical Navigation Images for Improved Midbrain Nuclei Imaging and Guidance During Deep Brain Stimulation Implantation*

**11:15 - 11:30am**  
**CO-CHAIR:**  
**Mesut SAHIN, Ph.D.**  
Assistant Professor of Biomedical Engineering,  
New Jersey Institute of Technology  

*Brain-Computer Interfacing: Too Many Choices of Brain Sites for Recording Volitional Activity*

**11:30 - 11:45am**  
**Herc NEVES, Ph.D.**  
Principal Scientist, Biomedical Microsystems  
Program Manager, Smart Implants  
IMEC vzw  

*Cerebral Implants: A Microsystem Perspective*
## Scientific Session 12: Robotics, Brain Implants and Human Brain Machine Interface - Session 2 (Cont.)

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| 11:45 - 12:00pm | **Aria A. TZIKA, Ph.D.**  
Director of NMR Surgical Laboratory,  
Massachusetts General Hospital and Shriners Burns Institute,  
Athinoula A. Martinos Center for Biomedical Imaging  
Harvard Medical School | **Connectivity Alterations Assessed by Combining fMRI and MR Compatible Rehabilitation Robots in Chronic Stroke** |
| 12:00 - 12:15pm | **Wentai Liu, Ph.D.**  
Professor of Electrical Engineering  
Campus Director of NSF-ERC on Biomimetic MicroElectronic Systems (BMES)  
University of California at Santa Cruz | **High Density Brain Signal Recording and Processing Miniaturized System** |
| 12:15 - 2:00pm | **LUNCH BREAK** |                                                                                                        |

## Scientific Session 13: Mapping for Energy Delivery in the Brain

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<tr>
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| 2:00 - 2:15pm | **CHAIR:**  
**Antonio A.F. DE SALLES, M.D., Ph.D.**  
Professor of Neurosurgery,  
Head of Stereotactic Radiosurgery  
David Geffen-UCLA School of Medicine | **Importance of Fibertracking Maps for Functional Neurosurgery** |
| 2:15 - 2:30pm | **CO-CHAIR:**  
**Alessandra GORGULHO, M.D.**  
Stereotactic Section  
Department of Neurosurgery  
David Geffen-UCLA School of Medicine | **DTI and Imaging Fusion for AVM Radiosurgery Planning and Follow-up** |
| 2:30 - 2:45pm | **Tom S. LEE, M.S.**  
Computer Scientist, Permedics Inc.  
Research Assistant, Loma Linda University | **Software-Based MRI Distortion Correction for Precise Radiation Treatment Planning** |
| 2:45 - 3:00pm | **Nzhde AGAZARYAN, Ph.D., DABR**  
Associate Professor of Radiation Oncology  
Stereotactic Section  
Department of Neurosurgery  
David Geffen-UCLA School of Medicine | **Frameless Localization for Radiosurgery Delivery** |
Scientific Session 13: Mapping for Energy Delivery in the Brain (Cont.)

3:00 - 3:15pm  Justin Zivin, M.D., Ph.D.
Professor of Neurosciences and
Vice Chairman of the Department of Neurosciences,
University of California San Diego School of Medicine

Use of Laser Irradiation of the Brain for Improving Recovery from Stroke

3:15 - 3:30pm  Q & A

3:30 - 4:00pm  TEA RECESS

Scientific Session 14: New Horizon

4:00 - 4:15pm  CHAIR:
Tzyy-PING JUNG, Ph.D.
Associate Director
Swartz Center for Computational Neuroscience
University of California San Diego

Complex Brain Dynamics during Sustained Attention Tasks

4:15 - 4:30pm  CO-CHAIR:
Kenneth I. LIPOW, M.D.
Chief of Neurosurgery,
Bridgeport Hospital
(a Yale Network Affiliate)
President of Connecticut Neurosurgical Specialists, P.C.

The Challenge of Neurosurgical Physiologic Augmentation

4:30 - 4:45pm  Arminas RAGAUSKAS, D.Sc.
Professor
Head of Telematics Sc. Lab.,
Kaunas University of Technology, Lithuania

Innovative Technologies for Noninvasive Assessment of Intracraniospinal Physiological Characteristics

4:45 - 5:00pm  Jeng-Ren DUANN, Ph.D.
Project Scientist
Swartz Center for Computational Neuroscience,
Institute for Neural Computation
University of California San Diego

Exploring BOLD Based-Causality between Independent Brain Networks

5:00 - 5:15pm  Srini MUKUNDAN, PhD, MD
Director of Neuroradiology
Brigham and Women’s Hospital

CT Based Surgical Planning in the Cases of Craniosynostosis

5:15pm  TEA RECESS