RICHARD LENDE
WINTER
NEUROSURGERY
CONFERENCE

February 3 – 7, 2017
CLIFF LODGE
SNOWBIRD, UTAH

American Association of Neurological Surgeons
Jointly Provided by the AANS
Welcome to the 43rd Annual Richard Lende Winter Neurosurgery Conference.
This meeting has a rich tradition since its inception in March of 1973.

The original founders of this meeting included prominent neurosurgeons from around the country. This group included Chairs of Neurosurgery from Albany (Richard Lende), Minnesota (Shelley N. Chou), Utah (Ted Roberts), Washington (Arthur Ward), UC Irvine (Eldon Foltz), Chicago (Howard Reichman), and two Utah neurosurgeons Peter Heilbrun (who later became Chair at Utah) and Chester Powell. Unfortunately, Dr. Lende sustained a serious ankle fracture at that first meeting that later lead to his untimely death during a subsequent surgical procedure. With full support of Dr. Lende’s family, he became the namesake of this yearly neurosurgical meeting. From 1975 forward the meeting was sponsored by the University of Utah and carried the name of the Richard Lende Winter Neurosurgery Conference. The meeting became increasingly popular and had an international attendance. A second tragedy took place in 1987 when a frequent supporter of the meeting, Dr. David L. Kasdon died in a scuba diving accident. The following year a special lecture was named after Dr. Kasdon, with Dr. Vinko Dolenc serving as the inaugural named lecturer. Since that time many prominent neurosurgeons (the list is found in this program) have continued this tradition with Dr. Robert H. Rosenwasser serving as this year’s Kasdon lecturer.

Dr. Ted Roberts organized the first meeting and Dr. Peter Heilbrun served as the director for the next 10 years. In 1983, Dr. Robert Hood took over as organizer of the meeting for the next 22 years. I have organized it since 2005, at which time we have added a biannual Neuro Oncology Update at the Huntsman Cancer Institute the day before the beginning of the Snowbird meeting. Dr. Peter Heilbrun continued to be a major supporter of this meeting until his untimely death in October of 2010. Since that time a Saturday family dinner with accompanying non-neurosurgical lecture was instituted to honor his legacy of neurosurgical innovation and love of adventure. The meeting has changed over the years but continues to be an excellent outlet for discussion of relevant neurosurgical topics and scientific discovery.

Randy Jensen M.D., Ph.D.
DAVID L. KASDON

This and all Lende meetings since 1988 are dedicated to the memory of "Deel", whose untimely passing shocked all of us who were privileged to know and love him. The void, which we feel, cannot be filled, for he was so much a part of the vitality of this unique yearly gathering. His ability to enjoy life, to make work seem like play, is truly the spirit embodied in the Lende meeting.

PAST KASDON LECTURERS

<table>
<thead>
<tr>
<th>Year</th>
<th>Lecturer</th>
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<tbody>
<tr>
<td>1988</td>
<td>VINKO V. DOLENC, M.D., Ph.D.</td>
</tr>
<tr>
<td>1989</td>
<td>BENNETT M. STEIN, M.D.</td>
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<td>1990</td>
<td>JOHN M. JACOBS, M.D.</td>
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<tr>
<td>1992</td>
<td>MADJID SAMII, M.D.</td>
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<tr>
<td>1993</td>
<td>RUDOLF FAHLBUSCH, M.D.</td>
</tr>
<tr>
<td>1994</td>
<td>ROBERT F. SPETZLER, M.D.</td>
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<tr>
<td>1996</td>
<td>AXEL PERNECZKY, M.D.</td>
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<tr>
<td>1997</td>
<td>NICHOLAS de TRIBOLET, M.D.</td>
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<tr>
<td>1998</td>
<td>BERNARD GEORGE, M.D.</td>
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<tr>
<td>1999</td>
<td>M. PETER HEILBRUN, M.D.</td>
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<tr>
<td>2000</td>
<td>L. NELSON HOPKINS, M.D.</td>
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<tr>
<td>2001</td>
<td>PETER W. CARMEL, M.D.</td>
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<tr>
<td>2002</td>
<td>JAMES T. RUTKA, M.D., Ph.D.</td>
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<tr>
<td>2003</td>
<td>STEVEN L. GIANNOTTA, M.D.</td>
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<tr>
<td>2004</td>
<td>DAVID G. PIEPGRAS, M.D.</td>
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<td>2005</td>
<td>EDWARD H. OLDFIELD, M.D.</td>
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<td>2006</td>
<td>VOLKER K.H. SONNTAG, M.D.</td>
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<td>2007</td>
<td>ROY A. PATCHELL, M.D.</td>
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<td>2007</td>
<td>MICHAEL P. POWELL, M.D.</td>
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<tr>
<td>2008</td>
<td>WARREN R. SELMAN, M.D.</td>
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<td>2009</td>
<td>MANFRED WESTPHAL, M.D.</td>
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<td>2010</td>
<td>RONALD I. APFELBAUM, M.D.</td>
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<td>2011</td>
<td>E. ANTONIO CHIOCCA, M.D.</td>
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<td>2012</td>
<td>FREDRIC MEYER, M.D.</td>
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<tr>
<td>2013</td>
<td>CHRISTOPHER SHAFFREY, M.D.</td>
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<tr>
<td>2014</td>
<td>ROBERTO C. HEROS, M.D.</td>
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<tr>
<td>2015</td>
<td>TAKANORI FUKUSHIMA, M.D.</td>
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<tr>
<td>2016</td>
<td>KIM J. BURCHIEL, M.D.</td>
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THE 2017 KASDON LECTURER

ROBERT H. ROSENWASSER, M.D.
ACCREDITATION/DESIGNATION

“This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of the AANS and Richard Lende Winter Neurosurgery Conference. The AANS is accredited by the ACCME to provide continuing medical education for physicians.”

The AANS designates this live activity for a maximum of 23.75 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

AANS JOINT PROVIDERSHIP DISCLAIMER

The material presented at the 43rd Annual Meeting in 2017 has been made available by the Richard Lende Winter Neurosurgery Conference and the AANS for educational purposes only. The material is not intended to represent the only, nor necessarily the best, method or procedure appropriate for the medical situations discussed, but rather it is intended to present an approach, view, statement, or opinion of the faculty, which may be helpful to others who face similar situations.

Neither the content (whether written or oral) of any course, seminar or other presentation in the program, nor the use of a specific product in conjunction therewith, nor the exhibition of any materials by any parties coincident with the program, should be construed as indicating endorsement or approval of the views presented, the products used, or the materials exhibited by the Richard Lende Winter Neurosurgery Conference and jointly provided by the AANS, or its Committees, Commissions, or Affiliates.

Neither the AANS nor the Richard Lende Winter Neurosurgery Conference makes any statements, representations or warranties (whether written or oral) regarding the Food and Drug Administration (FDA) status of any product used or referred to in conjunction with any course, seminar or other presentation being made available as part of the Richard Lende Winter Neurosurgery Conference. Faculty members shall have sole responsibility to inform attendees of the FDA status of each product that is used in conjunction with any course, seminar or presentation and whether such use of the product is in compliance with FDA regulations.

This will be a live presentation with interactive discussion and abstract presentations. The purpose of this meeting is to present unbiased presentations by medical professionals. The abstracts are related to current research and surgical procedures. Participants will have the opportunity to present abstracts in a friendly, casual environment.
2017 ANNUAL MEETING LEARNING OBJECTIVES

Upon completion of this CME activity, participants should be able to:

1. Apply recent clinical and basic science discoveries for the treatment of brain tumors.
2. Discuss endovascular treatment of stroke, subarachnoid hemorrhage, and vascular malformations.
3. Apply spinal biomechanical studies and clinical outcomes research for better treatment of spinal deformity.

Future Meeting Dates

February 2–February 6, 2018
DISCLOSURES

The AANS and the Richard Lende Winter Neurosurgery Conference controls the content and production of this CME activity and attempts to ensure the presentation of balanced, objective information. In accordance with the Standards for Commercial Support established by the Accreditation Council for Continuing Medical Education (ACCME), faculty, abstract reviewers, paper presenters/authors, co-authors, planning committee members, staff and any others involved in planning the educational content and the significant others of those mentioned must disclose any relationships they or their co-authors have with commercial interests which may be related to their content. The ACCME defines "relevant financial relationships" as financial relationships in any amount occurring within the past 12 months that create a conflict of interest.

The following persons planned or contributed to the planning of this CME activity:

Randy L. Jensen, M.D., Ph.D., University of Utah School of Medicine, Salt Lake City, UT
William T. Couldwell, M.D., Ph.D., University of Utah School of Medicine, Salt Lake City, UT

FACULTY DISCLOSURE LISTING

Those who have disclosed a relationship* with commercial interests are listed below:

<table>
<thead>
<tr>
<th>Name</th>
<th>Disclosure</th>
<th>Type of Relationship</th>
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<tbody>
<tr>
<td>Erica Bisson</td>
<td>PCORI, nView</td>
<td>University Grants/Research Support</td>
</tr>
<tr>
<td>Howard Colman</td>
<td>Roche, Genetech, Upsher-Smith, Omniox, Insys, Plexxikon, Newlink Genetics</td>
<td>Advisory Board</td>
</tr>
<tr>
<td>Randy Jensen</td>
<td>Medtronic</td>
<td>Consultant Fee</td>
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<tr>
<td>Julie Pilitsis</td>
<td>Medtronic, Boston Scientific, St. Jude Medical, NIH 1RO1CA166379, Jazz Pharmaceuticals</td>
<td>University Grants/Research Support</td>
</tr>
<tr>
<td>Kris A. Smith</td>
<td>Monteris</td>
<td>Consultant Fee</td>
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</tbody>
</table>
*Relationship refers to receipt of royalties, consultantship, funding by research grant, receiving honoraria for educational services elsewhere, or any other relationship to a commercial interest that provides sufficient reason for disclosure.

Those who have reported they do not have any relationships with commercial interests:

Erinc Akture  
Al-Wala Awad  
Andrea Brock  
Douglas Brockmeyer  
Elizabeth Carlson  
Peter Carmel  
William Couldwell  
Lanette Dunbar  
Robert Ecker  
Ilyas Eli  
Daniel Fults  
Jian Guan  
Dan Heffez  
Ryan Hirschi  
Kyle Halvorson  
Paul House  
Eric Huang  
Evan Joyce  
Yashar Kalani  
Michael Karsy  
Bornali Kundu  
Marcus Mazur  
Guy McKhann  
David Newell  
T.C. Origitano  
Vijay Ravindra  
Robert Rosenwasser  
Jonathan Scoville  
Aatman Shah  
Peter Shin  
Walavan Sivakumar  
Patricia Tiburcio  
Jeffrey Tomlin  
Chris Winfree  
Kaan Yagmurlu  
Chester Yarbrough  
Nam Yoon  
Brandon Zsigray
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Codman Neuro
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508-828-3597

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763-526-6019

DePuy Synthes Codman
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Raynham, MA  02767
508-828-3597

Southwest Surgical, LLC
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Scottsdale, AZ  85255
480-515-1680

Derma Sciences Surgical Solutions
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Cordova, TN  38018
602-757-2323

Stryker
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Portage, MI  49002
269-323-7700

Integra Life Sciences
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Plainsboro, NJ  08536
801-647-3104

Zimmer Biomet
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Jacksonville, FL  32218
904-741-8522

KLS Martin Group
PO Box 16369
Jacksonville, FL  32245
904-641-7746
### SOCIAL PROGRAM

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<tr>
<th>Day</th>
<th>Time</th>
<th>Event</th>
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<tr>
<td><strong>FRIDAY</strong> February 3rd</td>
<td>7:00 pm - 8:30 pm</td>
<td>Opening Reception, Ballroom I, Level B/Cliff</td>
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<tr>
<td><strong>SATURDAY</strong> February 4th</td>
<td>12:30 pm - 2:00 pm</td>
<td>Family Ski Lunch in Golden Cliff, Level B/Cliff</td>
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<td></td>
<td>7:00 pm - 9:00 pm</td>
<td>Heilbrun Lecturer with Family Dinner Ballroom I, Level B/Cliff</td>
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<tr>
<td><strong>SUNDAY</strong> February 5th</td>
<td>9:00 am</td>
<td>Physician’s Group Photo</td>
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<td></td>
<td>12:30 pm - 2:00 pm</td>
<td>Family Ski Lunch in Golden Cliff, Level B/Cliff</td>
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<tr>
<td><strong>MONDAY</strong> February 6th</td>
<td>12:30 pm - 2:00 pm</td>
<td>Family Ski Lunch in Golden Cliff, Level B/Cliff</td>
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<tr>
<td></td>
<td>7:30 pm – 9:00 pm</td>
<td>Closing Family Reception, Atrium Level B/Cliff</td>
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<tr>
<td><strong>TUESDAY</strong> February 7th</td>
<td>12:30 pm - 2:00 pm</td>
<td>Family Ski Lunch in Golden Cliff, Level B/Cliff</td>
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**Locations for Events:**

- Lende Meeting Participant Breakfast (7:00 am – 8:30 am) Saturday - Tuesday: Ballroom II, Level B/Cliff
- Lende Sessions Begin @ 8:00 am Ballroom I, Level B/Cliff
- Exhibitors Ballroom II, Level B/Cliff
- Opening Family Reception Ballroom I, Level B/Cliff
- Family Ski Lunches Golden Cliff, Level B/Cliff
- Heilbrun Lecturer/Family Dinner Ballroom I, Level B/Cliff
- Closing Family Reception Atrium Level B/Cliff
SATURDAY MORNING FEBRUARY 4th, 2017

ENDOVASCULAR/VASCULAR

8:00-8:15 am  Death after Thrombectomy: Patient Selection, Technical Complications or Natural History, an Analysis of Contributing Factors.  
CRAIG KILBURG, M.D., Salt Lake City, UT  
Craig Kilburg, Min Park, Philipp Taussky

8:15-8:20 am  Discussion

8:20-8:35 am  Bypass Surgery or Endovascular Flow Diversion for the Treatment of Cavernous ICA Aneurysms.  
WALA AWAD, M.D., Salt Lake City, UT  
Wala Awad, Yashar S. Kalani

8:35-8:40 am  Discussion

8:40-8:55 am  Wnts Produced by the Vascular Niche Mediate Self-Renewal of Neural Stem Cells.  
ELIZABETH WHITNEY JANE CARLSON, B.S., Salt Lake City, UT  
Elizabeth W. J. Carlson, Michael Jensen, Yashar S. Kalani

8:55-9:00 am  Discussion

9:00-9:15 am  Complex Carotid Reconstruction.  
ROBERT D. ECKER, M.D., Cape Elizabeth, ME  
Robert D. Ecker, Richard Ogbuji, Jeff Hamm, Christopher Healey, Elizabeth Blazick, Jens Jorgensen, Nicketti Handy

9:15-9:20 am  Discussion

9:20-9:35 am  Comparing the Unruptured Intracranial Aneurysm Treatment Score (UIATS) to Real-World Cerebrovascular Practice at a Tertiary Academic Medical Center.  
JONATHAN SCOVILLE, M.D., Salt Lake City, UT  
Jonathan Scoville, Vijay M. Ravindra, Adam de Havenon, Tim Gooldy, Jian Guan, William T. Couldwell, Philipp Taussky, Joel D. MacDonald, Richard H. Schmidt, Min S. Park

9:35-9:40 am  Discussion

EVAN J. JOYCE, M.D., MS, Salt Lake City, UT  
Evan J Joyce, Ilyas Eli, Min Park, Phil Taussky, Richard Schmidt, Jamie McDonald, Kevin Whitehead, M. Yashar S. Kalani

9:55-10:00 am  Discussion
10:00-10:15 am  Clinical Presentation and Treatment Paradigms in Patients with Hereditary Hemorrhagic Telangiectasia and Spinal Vascular Malformations.
**ILYAS ELI, M.D., Salt Lake City, UT**
Ilyas Eli, Evan J Joyce, Min Park, Phil Taussky, Richard Schmidt, Jamie McDonald, Kevin Whitehead, M. Yashar S. Kalani

10:15-10:20 am  Discussion

10:20-10:50 am  KASDON LECTURER—ROBERT ROSENWASSER, M.D.

10:50-11:00 am  Discussion

11:00 am  Adjourn

**SATURDAY AFTERNOON, FEBRUARY 4th, 2017**

**TUMOR/SKULL BASE**

4:00-4:15 pm  The Role of Hypoxia Inducible Factors in the Therapeutic Resistance of Gliomas.
**MICHAEL KARSY, M.D., Salt Lake City, UT**
Michael Karsy, David Gillespie, Jeffrey Yap, Randy L. Jensen, Kevin Horn, Lance Burrell

4:15-4:20 pm  Discussion

**L. ERIC HUANG, M.D., PH.D., Salt Lake City, UT**

4:35-4:40 pm  Discussion

4:40-4:55 pm  Mutant IDH Induces Gene-Specific Hypermethylation to Prevent Glioma Progression.
**PATRICIA TIBURCIO Salt Lake City, UT**
Patricia Tiburcio, Bing Xiao, L. Eric Huang

4:55-5:00 pm  Discussion

5:00-5:15 pm  GBM Clinical Trial Update and the Upcoming GBM AGILE International Adaptive Trial.
**HOWARD COLMAN, M.D., PH.D., Salt Lake City, UT**
Howard Colman

5:15-5:20 pm  Discussion
5:20-5:35 pm  A Hematogenous Route for Medulloblastoma Leptomeningeal Metastases. 
**Daniel W. Fults, M.D., Ph.D. Salt Lake City, UT**
Livia Garzia, Noriyuki Kijima, A Sorana Morrissy, Xiaochong Wu, Robert J Wechsler-Reya, Daniel W Fults, and Michael Taylor

5:35-5:40 pm  Discussion

5:40-5:55 pm  Diagnosis of GBM Based on Pre-Operative Imaging in the Elderly Patient Population: Do the Ends Justify the Means?  
**Nam Yoon, M.D., Salt Lake City, UT**
Nam Yoon, Michael Karsy, Randy Jensen, Joel D. MacDonald, Sarah T. Menacho

5:55-6:00 pm  Discussion

6:00-6:30 pm  **Kasdon Lecturer—Robert Rosenwasser, M.D.**

6:30-6:45 pm  Discussion

6:45 pm  Adjourn

7:00 pm  Family Dinner and Heilbrun Lecturer

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**Sunday Morning, February 5th, 2017**

**Surgical Anatomy/Functional**

8:00-8:15 am  The Interpeduncular Fossa Safe-Entry Zone: A Novel Entry Point for Resection of Midbrain Lesions.  
**M. Yashar S. Kalani, M.D., Ph.D., Salt Lake City, UT**
M. Yashar S. Kalani, Kaan Yagmurlu, Robert F. Spetzler

8:15-8:20 am  Discussion

8:20-8:35 am  The Superior Fovea Triangle Safe-Entry zone for Resection of Dorsal Pontine Lesions.  
**Kaan Yagmurlu, M.D., Salt Lake City, UT**
Kaan Yagmurlu, M. Yashar S. Kalani, Robert F. Spetzler

8:35-8:40 am  Discussion

**Kaan Yagmurlu, M.D., Salt Lake City, UT**
Kaan Yagmurlu, M. Yashar S. Kalani
8:55-9:00 am  Discussion

9:00-9:15 am  The Changing Face of Epilepsy Surgery: New Approaches to Old Problems.
**GUY MCKHANN, M.D., New York, NY**
Guy McKhann

9:15-9:20 am  Discussion

**KRIS A. SMITH, M.D., Phoenix, AZ**
Kris A. Smith

9:35-9:40 am  Discussion

**BORNALI KUNDU, M.D., Salt Lake City, UT**
Bornali Kundu, Lauren Schrock, Paul A. House

9:55-10:00am  Discussion

10:00-10:50 am  What's New in Neuromodulation for Pain.
**JULIE PILITSIS, M.D., Albany, NY**
Julie Pilitsis

10:50-11:00 am  Discussion

11:00 am  Adjourn

**SUNDAY AFTERNOON, FEBRUARY 5th, 2017**

**TUMOR**

4:00-4:20 pm  Neurovascular Compression of the Spinal Accessory Nerve: A Novel Theory on the Etiology of Symptoms in Chiari I Malformation
**WALAVAN SIVAKUMAR, M.D., Salt Lake City, UT**
Walavan Sivakumar, Richard H. Schmidt

4:20-4:30pm  Discussion

4:30-7:00 pm  Neurosurgical Jeopardy.
MONDAY MORNING, FEBRUARY 6th, 2017

SPINE/PERIPHERAL NERVE

8:00-8:15 am  Fixed Cervical Deformity.
MARCUS MAZUR, M.D., Salt Lake City, UT
Marcus Mazur, Andrew Dailey

8:15-8:20 am  Discussion

8:20-8:40 am  Is There a Relationship Between the Extent of Tonsillar Ectopia and the Severity of the Clinical Chiari Syndrome?
DAN S HEFFEZ, M.D., Milwaukee, WI
Dan S Heffez, John Brodrick, Michael Connor, Michael Mitchell, JoAnna Galezowska, Ramin Golchini, Jugal Ghorai

8:40-8:50am  Discussion

8:50-9:10 am  The Far Lateral Lumbar Disc Herniation: What Every Cranial Surgeon Should Know.
T.C. ORIGITANO, M.D., PH.D., Kalispell, MT
TC Origitano, Tacey E Griffin

9:10-9:20 am  Discussion

9:20-9:35 am  Population-Based Approaches to Treatment and Readmission after Spinal Cord Injury.
CHESTER YARBROUGH, M.D., Salt Lake City, UT
Chester Yarbrough, Kerry Bommarito, Paul Gamble, Ammar Hawasli, Ian Dorward, Margaret Olson, Wilson Ray

9:35-9:40 am  Discussion

PETER CARMEL, M.D., Newark, NJ
Peter Carmel

9:55-10:00 am  Discussion

10:00-10:50 am  Outpatient MIS Fusion Surgery.
MICHAEL Y. WANG, M.D., Miami, FL
Michael Wang

10:50-11:00 am  Discussion

11:00 am  Adjourn
MONDAY AFTERNOON, FEBRUARY 6th, 2017

SPINE/PERIPHERAL NERVE

4:00-4:15 pm  Thoracolumbar Arthrodesis of Degenerative Spondylosis with Stereotactic Cortical Screws and Midline Lumbar Interbody Fusion (MIDLIF).
MICHAEL KARSY, M.D., PH.D., Salt Lake City, UT
Michael Karsy, Kyril Cole, Shane Parkinson, Andrea Brock, Jian Guan, Chad Cole

4:15-4:20 pm  Discussion

4:20-4:35 pm  Is Three Months an Appropriate Time to Evaluate Clinical Outcomes After Anterior Cervical Discectomy and Fusion?
MARCUS D. MAZUR, M.D., Salt Lake City, UT
Marcus D Mazur, Erica F Bisson

4:35-4:40 pm  Discussion

4:40-5:00pm  Single Port Endoscopic Spine Surgery for Treatment of Cervical and Lumbar Radiculopathy.
PETER C. SHIN, M.D., Albuquerque, NM
Peter C. Shin, Jessica Roscosky

5:00-5:10pm  Discussion

CHRISTOPHER J. WINFREE, M.D., New York, NY
Christopher J Winfree, Randy S. D’Amico

5:30-5:40 pm  Discussion

VIJAY RAVINDRA, M.D., Salt Lake City, UT

5:55-6:00 pm  Discussion

6:00-6:15 pm  Laminoplasty vs. Laminectomy-Fusion For the Treatment of Cervical Myelopathy: Pilot Data from the CSM-Study Comparing Cervical Sagittal Alignment and Clinical Outcomes.
VIJAY RAVINDRA, M.D., Salt Lake City, UT
6:15-6:20 pm  Discussion

6:20-6:55 pm  Endoscopic Discectomy.
**MICHAEL Y. WANG, M.D., Miami, FL**
Michael Y Wang

6:55-7:00 pm  Discussion

7:00 pm  Adjourn

7:30 pm  Closing Family Reception, Atrium

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**TUESDAY MORNING, FEBRUARY 7th, 2017**

**GENERAL NEUROSURGERY**

8:00-8:15 am  Pathologic Remodeling of Endoneurial Tubules in Human Neuromas.
**MICHAEL KARSY, MD, PHD, Salt Lake City, UT**
Michael Karsy, Cheryl A. Palmer, Mark A. Mahan

8:15-8:20 am  Discussion

**RANDY JENSEN M.D., Ph.D., Salt Lake City, UT**
Randy Jensen, Gmann AlZhrani, John Kestle, Douglas Brockmeyer, William Couldwell

8:35-8:40 am  Discussion

8:40-8:55 am  Managing Concurrent Surgery: An Analysis of 1018 Neurosurgical and Spine Cases.
**JIAN GUAN, M.D., Salt Lake City, UT**
Jian Guan, Andrea A Brock, Michael Karsy, William T Couldwell, Meic H Schmidt, John R Kestle, Randy L Jensen, Andrew T Dailey, Richard H Schmidt

8:55-9:00 am  Discussion

9:00-9:15 am  Impact of a More Restrictive Overlapping Surgery Policy – An Analysis of Complication Rates, Resident Involvement and Surgical Wait Times at a High Volume Neurosurgical Department.
**JIAN GUAN, M.D., Salt Lake City, UT**
Jian Guan, Michael Karsy, Andrea A. Brock, William T. Couldwell, John R. Kestle, Randy L. Jensen, Andrew T. Dailey, Richard H. Schmidt

9:15-9:20 am  Discussion
                T.C. ORIGITANO, M.D., PH.D., Kalispell, MT
                TC Origitano, Joshua Krass, Joseph Sramek, Stephen Campbell

9:35-9:40 am    Discussion

9:40-9:55 am    The Emergence of Non-Invasive Transcranial Therapies: Recent Results and Implications for the Neurosciences.
                DAVID NEWELL, M.D., Seattle, WA
                David Newell

9:55-10:00 am   Discussion

10:00-10:15 am  Drivers and Components of Hospital Costs after Transsphenoidal Resection of Pituitary Tumors.
                JIAN GUAN, M.D., Salt Lake City, UT
                Jian Guan, Michael Karsy, Erica F. Bisson, MPH, William T. Couldwell

10:15-10:20 am  Discussion

10:20-10:35 am  Treatment of Idiopathic Intracranial Hypertension via Stereotactic Placement of Bilateral Combined Ventriculoperitoneal Shunts.
                MICHAEL KARSTY, M.D., PH.D, Salt Lake City, UT
                Michael Karsky, Hussam Abou-Al-Shaar, Christian Bowers, Richard H. Schmidt

10:35-10:40 am  Discussion

10:40-10:55 am  Effects of Ipsilateral Versus Contralateral EVD on Patient Outcome.
                JONATHAN SCOVILLE, M.D., Salt Lake City, UT
                Andrea Brock, Jian Guan, Jonathan Scoville, Ishwara Raghu Prashanth Sankara

11:00 am        Adjourn
TUESDAY AFTERNOON, FEBRUARY 7, 2017

ICU/TRAUMA/GENERAL NEUROSURGERY

4:00-4:15 pm  Analysis of High-Frequency P_{AO} Measures: Insights into the Treatment Threshold from “Big Data”.
RYAN HIRSCHI, M.D., Salt Lake City, UT
Ryan Hirschi, Gregory Hawryluk, Lara Zimmermann, Rajiv Saigal, Quan Ding, Geoffrey Manley

4:15-4:20 pm  Discussion

4:20-4:40 pm  Combat Neurotrauma: Bolts, Bullets and Bearings.
JEFFREY M. TOMLIN, M.D., San Diego, CA
Min Park, Jeffrey Tomlin

4:40-4:50 pm  Discussion

4:50-5:05 pm  Vitamin D Status and Three-Month Glasgow Outcome Scale Scores in Neurocritical Care Patients: A Prospective Analysis of 497 Patients.
JIAN GUAN, M.D., Salt Lake City, UT
Jian Guan, Michael Karsy, Andrea Brock, Ilyas Eli, Gabrielle Manton, Holly Ledyard, Gregory W Hawryluk, Min S Park

5:05-5:10 pm  Discussion

5:10-5:30 pm  A Single Institution Analysis and Classification of Surgical Complications in Pediatric Neurosurgery.
KYLE HALVORSON, M.D., Salt Lake City, UT
Kyle G. Halvorson, Philipp Taussky, John R. Kestle, Douglas L. Brockmeyer, Robert J. Bollo

5:30-5:40 pm  Discussion

ERINC AKTURE, M.D, Salt Lake City, UT
Erinc Akture, Robert Bollo, Kyle Halvorson, Philipp Taussky

5:55-6:00 pm  Discussion

6:00-6:15 pm  Strategies for Improving Surgical Outcomes in Fetal Spina Bifida Repair.
BRANDON ZSIGRAY, Houston, TX
Stephen A. Fletcher, Ramesha Papanna, Saul Snowise, Lovepreet Mann, Brandon M. Zsigray

6:15-6:20 pm  Discussion
**AATMAN SHAH, M.D., Salt Lake City, UT**
Aatman M. Shah, Shunsuke Ishizaka, Michelle Y. Cheng, Eric H. Wang, Alex R. Bautista, Sabrina Levy, Daniel Smerin, Guohua Sun, Gary K. Steinberg

6:35-6:40 pm  Discussion

6:40-6:55 pm  Quantification of Interleaving for the Activa PC.
**ANDREA BROCK, M.D., Salt Lake City, UT**
Andrea Brock, Alberto Fuentes, Christopher R. Butson

6:55-7:00 pm  Discussion

7:00 pm  Business Meeting

7:15 pm  Meeting Adjourn

This is the address to the webpage of our evaluation, once you have completed it you will be directed to the attendance verification page.

Everything is electronic this year.

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