

# Friday Program

## Cases and Controversies in Minimally Invasive Spine Surgery

6:45 am	Registration	
7:30	<b>Non-CME Technology Workshops with Breakfast</b> <i>Participants choose which to attend</i>	
	<b>MAZOR X™ Robotic System: Innovations and Evolutions in Spine Surgery</b> <i>John Pollina, MD</i> Supported by: Medtronic	<i>Pompeian I/II</i>
	<b>ExcelsiusGPS® First Clinical Experience</b> <i>Sabino D'Agostino, DO, FAANS, FACS</i> Supported by: Globus Medical	<i>Pompeian III/IV</i>

### SESSION 1 | Spinal Deformity

*Florentine Ballroom*

MODERATORS: G. Mundis, MD &amp; L. Pimenta, MD

#### Controversy: Does Every Patient Benefit from “Ideal” Correction?

8:30	Welcome	
8:35	Age Specific Alignment Goals: Give It to Me Straight, What are the Key Goals I Need to Know for Each Case?	<b>S. BERVEN, MD</b>
	<b>DEBATE:</b> Do We Really Need to Get Patients “Aligned” to Have a Good Long-term Outcome?	
8:43	Case: 75 y/o Female with Modest Degenerative Scoliosis	
8:46	Alignment is Overrated	<b>N. ANAND, MD</b>
8:51	Alignment is Critical to Outcome	<b>A. KANTER, MD</b>
8:56	Discussion	
9:00	Audience Response	
9:03	How Do I Decide Whether MIS, Hybrid, or Open is Best for My Patient?	<b>J. URIBE, MD</b>
9:11	Discussion	
	<b>DEBATE:</b> Surgical Approach to Degenerative Deformity: Front, Back, Lateral, or All Three?	
9:15	Case: 60 y/o Female, PI/LL 20°, SVA 10°, PT 23°	
9:18	Posterior Only is Ideal for the Patient	<b>M. WANG, MD</b>
9:23	Circumferential MIS Surgery is Best	<b>R. EASTLACK, MD</b>
9:28	Single Position Lateral Surgery Can Accomplish Everything	<b>W. SMITH, MD</b>
9:33	Discussion	
9:36	Audience Response	
	<b>DEBATE:</b> How Best to Treat L5-S1:	
9:38	Case: Adult Degenerative Scoliosis with DDD L5-S1 No Prior Surgery	
9:41	MIS TLIF	<b>S. QURESHI, MD</b>
9:46	ALIF—Direct Anterior	<b>D. OKONKWO, MD</b>
9:51	Discussion	
9:55	Avoiding L5-S1 in Short Segment Degenerative Scoliosis	<b>I. LIEBERMAN, MD</b>

# Friday Program, *continued*

10:03	Does Multi-Disciplinary Risk Assessment Lead to Better Outcomes?	<b>R. SETHI, MD</b>
10:11	Discussion	
10:15	<b>PANEL DISCUSSION:</b> Does Minimally Invasive Spine Surgery Lead to More or Less Complications? Alignment Failure; Implant Non-union Failure; Repeat Surgery <b>MODERATORS:</b> G. Mundis, MD & L. Pimenta, MD <b>PANEL:</b> S. Berven, MD; F. Phillips, MD; P. Mummaneni, MD & B. Staub, MD	
10:35	Refreshment Break & Exhibit Viewing	<i>Roman Ballroom</i>

## Concurrent Sessions: Free Papers & Young Surgeons' Session

### SESSION 2A | Degenerative & Lateral Free Papers

*Florentine Ballroom*

**MODERATORS:** N. Ashraf, MD & N. Anand, MD

11:05	<b>Paper #1:</b> A Clinical Study to Evaluate Static vs Expandable Lateral Lumbar Interbody Fusion Devices: with One-Year Follow-up <i>Richard Frisch, MD; Ingrid Y Luna, MS; Daina Brooks, BS; Gita Joshua, MA; and Charles Ledonio;</i> <b>Best Paper Award Finalist</b>	
11:09	<b>Paper #2:</b> Static vs Expandable Interbody Devices in Minimally Invasive Transforaminal Lumbar Interbody Fusion: Comparison of Radiographic and Functional Outcomes <i>Benjamin Khechen, BA; Brittany Haws, MD; Dil Patel, BS; Mundeep Bawa; Harmeet Bawa; Jordan Guntin, BS; Kaitlyn Cardinal, BS; Andrew Block, BS; and Kern Singh, MD</i>	
11:13	<b>Paper #3:</b> Immediate Restoration of Lordosis in Single-level Minimally Invasive Transforaminal Lumbar Interbody fusion (MI-TLIF): A Comparison of Expandable and Static Interbody Cages <i>Avani Vaishnav, MBBS; Philip Saville, MD; Steven McAnany, MD; Roger Härtl, MD; Sertac Kirnaz, MD; Rodrigo Navarro-Ramirez, MD, MSc; Catherine Gang, MPH; Sheeraz Qureshi, MD, MBA</i>	
11:17	<b>Paper #4:</b> Do Expandable Cages Lead to a Higher Incidence of Subsidence? Two-year Follow-up of Lateral Lumbar Interbody Fusions <i>Dan Cohen, MD; Joseph O'Brien, MD; William Tally, MD; Thomas Lee, MD; Torrey Shirk, BA; Gita Joshua, MA; and Charles Ledonio, MD</i>	
11:21	Discussion	
11:29	<b>Paper #5:</b> Minimally Invasive Spine Surgery through Lumbar Decompression: Patient-Reported Outcomes from More than 9,000 Cases <i>Stefan Prada, MD; Michael Weiss, DO; Stephen Songhurst, BS; Chip Wade, PhD; and Reginald Davis, MD</i> <b>Best Paper Award Finalist</b>	
11:33	<b>Paper #6:</b> Minimally Invasive Transforaminal Lumbar Interbody Fusion (MI-TLIF) vs Minimally Invasive Lateral Lumbar Interbody Fusion (MI-LLIF): A Comparison of Immediate Post-operative Outcomes for the Assessment of Decompression <i>Sheeraz Qureshi, MD, MBA; Avani Vaishnav, MBBS; Catherine Himo Gang, MPH; Steven McAnany, MD; and Todd Albert, MD</i>	

# Friday Program, *continued*

11:37	<p><b>Paper #7:</b> Employment is Associated with Superior Patient Reported Outcomes following Minimally Invasive Lumbar Spondylolisthesis Surgery: An Analysis of the Quality Outcomes Database  <i>Andrew Chan, MD; Erica Bisson, MD, MPH; Mohamad Bydon, MD; Steven Glassman, MD; Kevin Foley, MD; Eric Potts, MD; Christopher Shaffrey, MD; Mark Shaffrey, MD; Domagoj Coric, MD; John Knightly, MD; Paul Park, MD; Michael Wang, MD; Kai-Ming Fu, MD, PhD; Jonathan Slotkin, MD; Anthony Asher, MD; Panagiotis Kerezoudis, MD; Regis Haid, MD; and Praveen Mummaneni, MD</i></p>
11:41	<p><b>Paper #8:</b> Preoperative Opioid Use Associated with Worsened Outcomes in Patients Undergoing Stand-alone Lateral Lumbar Interbody Fusion for Degenerative Disc Disease  <i>David Salvetti, MD; Alp Ozpinar, MD; Nima Alan, MD; David Okonkwo, MD PhD; Adam Kanter, MD; and D. Kojo Hamilton</i></p>
11:45	Discussion
11:53	<p><b>Paper #9:</b> Systematic Review of Facet Tropism as it Relates to Degenerative Disc Disease in the Lumbar Spine: The Overlooked Synovial Joint  <i>Fabio Pencle, MBBS; Moawiah Mustafa; Luai Mustafa; Omar Viqar; Zaid Sheikh; and Kingsley Chin, MD</i></p>
11:57	<p><b>Paper #10:</b> Influence of Lumbar Stenosis on Concomitant Sacroiliac Joint Pain: Short-Term and Preliminary Long-Term Results  <i>Konrad Bach, MD; and Thomas Freeman, MD</i></p>
12:01 pm	<p><b>Paper #11:</b> Anterior Column Release (ACR) during Lateral Interbody Fusion for Hyperlordotic Segmental Correction  <i>Larry Khoo, MD; Roya Gheissari, MS; and Charlie Loeb</i></p>
12:05	<p><b>Paper #12:</b> Minimally Invasive Multilevel Oblique Lumbar Interbody Fusion (OLIF): An Anatomical Single Position Approach for CMIS Correction of Adult Spinal Deformity (ASD)  <i>Neel Anand, MD; Edward Nomoto, MD; Christopher Kong, MD; Babak Khandehroo, MD; and Sheila Kahwaty, PA-C</i></p>
12:09	Discussion
12:17	<p><b>Paper #13:</b> Impact of Local Steroid Application in a Minimally Invasive Transforaminal Lumbar Interbody Fusion  <i>Brittany Haws, MD; Benjamin Khechen, BA; Dil Patel, BS; Junyoung Ahn, MD; Daniel Bohl, MD, MPH; Mundeep Bawa; Harmeet Bawa; Kaitlyn Cardinal, BS; Jordan Guntin, BS; Sailee Karmarkar, BS; and Kern Singh, MD</i></p>
12:21	<p><b>Paper #14:</b> Clinical Outcome of OLIF with Percutaneous Posterior Fixation in Lateral Position for Degenerative Spondylolisthesis: Comparison between Elderly and Non-elderly Patients  <i>Y. Koike; Y. Kotani; H. Terao; Y. Hosokawa; H. Kobayasi; Y. Kameda; and H. Fukaya</i></p>
12:25	<p><b>Paper #15:</b> Use of Routine Motor-Evoked Potentials (MEPs) is Superior to Routine Running Electromyographic (EMG) and Somatosensory Evoked Potential (SSEP) Monitoring during Lateral Lumbar Interbody Fusion (LLIF) Procedures for Intraoperative Detection of Postoperative Neurological Deficits  <i>Larry Khoo, MD; Roya Gheissari; Ji Hyun Lee; and P. Richard Emmanuel, MD</i>  <b>Best Paper Award Finalist</b></p>
12:29	Discussion

# Friday Program, *continued*

## SESSION 2B | Deformity, Trauma & Cervical Free Papers

*Pompeian I-II*
**MODERATORS:** S. McAnany, MD & I. Moss, MD

11:05	<p><b>Paper #16:</b> Strategic Selection of Posterior Procedure and Clinical Outcome of Anterior-posterior Combined Correction Surgery with Oblique Lateral Interbody Fusion (OLIF) for Adult Spinal Deformity  <i>Yoshihisa Kotani; Yoshinao Koike; Hidemasa Terao; Yumejiro Nakamura; Hiroyuki Tachi; Yasushi Yabuuchi; and Yusuke Kameda</i></p>
11:09	<p><b>Paper #17:</b> The Impact of Endplate Fracture on the Clinical Efficacy of Minimally Invasive Percutaneous Pedicle Screw Fixation for Treatment of Thoraco-lumbar Vertebra Burst Fractures  <i>Yongxin Ren, MD, PhD and Hui Che, Master</i></p>
11:13	<p><b>Paper #18:</b> Multi-level Cervical Constructs in Clinical Practice Using Integrated Interbody Fusion  <i>Jason Garber, MD, FACS</i></p>
11:17	<p><b>Paper #19:</b> Evaluation of Current Trends in Treatment of Single-level Cervical Radiculopathy  <i>Jung Mok; Evan Sheha, MD; Andre Samuel, MD; Steven McAnany, MD; Avani Vaishnav, MBBS; Todd Albert, MD; Catherine Gang, MPH; and Sheeraz Qureshi, MD, MBA</i></p>
11:21	Discussion
11:29	<p><b>Paper #20:</b> Sway and Neuromuscular Activity Changes in Adult Degenerative Scoliosis Patients Pre and Post Surgery Compared to Controls  <i>R. Haddas and I. Lieberman</i></p>
11:33	<p><b>Paper #21:</b> Proximal Fusion Constructs in MIS Scoliosis Surgery are Successful without Interbody or Intertransverse Fusion  <i>S. Burks; J. Godzik; K. Bach; J. Uribe; and M. Wang</i></p>
11:37	<p><b>Paper #22:</b> The MISDEF2 Algorithm: An Updated Algorithm for Patient Selection In Minimally Invasive Deformity Surgery  <i>Kai-ming Fu; Praveen Mummaneni; Paul Park; Michael Wang; Khoi Than; Adam Kanter; Dean Chou; Gregory Mundis; Robert Eastlack; Juan Uribe; Pierce Nunley; Richard Fessler; Neel Anand; and Christopher Shaffrey</i></p>
11:41	<p><b>Paper #23:</b> Clinical and Radiographic Outcomes of Mini Open Correction and Fusion for Adolescent Idiopathic Scoliosis (AIS): 2–5 Years Follow up  <i>D. Singh; M. Geck; E. Truumees; and J. Stokes</i></p>
11:45	Discussion
11:53	<p><b>Paper #24:</b> The Relationship of Static Spinopelvic Parameters with Dynamic Biomechanical Parameters Measured by Gait and Balance Analyses in Patients with Adult Degenerative Scoliosis  <i>Ram Haddas and Isador Lieberman, MD</i></p>
11:57	<p><b>Paper #25:</b> Is Achieving Optimal Spinopelvic Parameters Necessary to Obtain Substantial Clinical Benefit: Analysis of Patients who Underwent Circumferential MIS or Hybrid Surgery with Open Posterior Instrumentation  <i>Paul Park, MD; Robert Eastlack, MD; Kai-Ming Fu, MD; Stacie Tran; Gregory Mundis, MD; Juan Uribe, MD; Michael Wang, MD; Khoi Than, MD; David Okonkwo, MD; Adam Kanter, MD; Pierce Nunley, MD; Neel Anand, MD; Richard Fessler, MD; Dean Chou, MD; Praveen Mummaneni, MD; and International Spine Study Group</i></p>

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12:01 pm	<b>Paper #26:</b> The Role of Pelvic Parameters on S2 Alar-Iliac (S2AI) Screw Trajectory <i>Jamal Shillingford, MD; Joseph Laratta, MD; James Lin, MD; Comron Saifi; Steven Ludwig; Lawrence Lenke, MD; and Ronald Lehman, MD</i>
12:05	<b>Paper #27:</b> Navigated Percutaneous Cervical Pedicle Screw Internal Fixation <i>John Pelozo, MD and Meghan Cingrani</i>
12:09	Discussion
12:17	<b>Paper #28:</b> The Effect of an Expandable Lordotic Interbody Implant to a Fixed Lordotic Interbody Implant in Minimally Invasive Spine Surgery: Its Effect on Sagittal Alignment and Restoration of Disc Height and Foraminal Heights <i>Donald Kucharzyk, DO and Dushan Budimir, BS</i>
12:21	<b>Paper #29:</b> Iliac Screws may not be Necessary in Long Segment Constructs with Lumbosacral ALIF: A Cadaveric Study of Stability and Instrumentation Strain <i>Randall Hlubek, MD; Jakub Godzik, MD; Anna Newcomb, MS; Jennifer Lehrman, MS; Bernardo De Andrada Pereira, MD; Brian Kelly, PhD; and Jay Turner, MD, PhD</i>
12:25	<b>Paper #30:</b> Impact of Lower Thoracic vs. Upper Lumbar UIV in MIS Correction of Adult Spinal Deformity <i>Robert Eastlack, MD; Pierce Nunley, MD; Juan Uribe, MD; Paul Park, MD; Stacie Tran, MPH; Michael Wang, MD; Khoi Than, MD; David Okonkwo, MD; Adam Kanter, MD; Neel Anand, MD; Richard Fessler, MD; Kai Ming Fu, MD; Dean Chou, MD; Praveen Mummaneni, MD; Gregory Mundis, MD; and International Spine Study Group</i>
12:29	Discussion

## SESSION 2C | Young Surgeons' Free Papers Pompeian III-IV

MODERATORS: A. Kanter, MD & E. Yu, MD

11:05	<b>YS Paper #31:</b> Age, Number of Vertebral Levels Fused, and Average Psoas Size All Predict Hospital Length of Stay after Minimally Invasive TLIF and LLIF <i>H. Zakaria; M. Macki; L. Massie; and V. Chang</i>
11:08	<b>YS Paper #32:</b> Maximal Segmental Lordosis can be Achieved when Fixating into One or Both Vertebral Bodies during Anterior Column Realignment: A Cadaveric Study <i>Jakub Godzik, MD; Bernardo de Andrada Pereira, MD; Anna Newcomb, MS; Jennifer Lehrman, MS; Gregory Mundis, MD; Juan Uribe, MD; Brian Kelly, PhD; and Jay Turner, MD, PhD</i>
11:11	<b>YS Paper #33:</b> Optimizing Biomechanics of Anterior Column Realignment (ACR) Constructs: A Cadaveric Study of Rod Strain and Construct Stability <i>Jakub Godzik, MD; Bernardo de Andrada Pereira, MD; Anna Newcomb, MS; Jennifer Lehrman, MS; Gregory Mundis, MD; Randy Hlubek, MD; Juan Uribe, MD; Brian Kelly, PhD; and Jay Turner, MD, PhD</i>
11:14	<b>YS Paper #34:</b> Interbody Fusion Rate In Extreme Lateral Interbody Fusion Surgery: A Proposal of Classification <i>Luca Proietti; Caterina Fumo; Luca Fresta; Andrea Perna; Ilaria Giannelli; Marco Renzi; and Francesco Ciro Tamburrelli</i>
11:17	Discussion
11:22	<b>YS Paper #35:</b> Does Dynamic Surgical Guidance (DSG) Contribute to Safe and Accurate Pedicle Screws, A Retrospective Collection <i>John Starr, MD and David Powell, MD</i>

# Friday Program, *continued*

11:25	<p><b>YS Paper #36:</b> Reducing Pedicle Drilling Radiation by using Dynamic Surgical Guidance with a Jamshidi Needle while Maintaining Screw Placement Accuracy: A Cadaver study  <i>John Williams, MD; Larry Khoo, MD; Karim Muradian, MD; and John Gaughan, PhD</i></p>
11:28	<p><b>YS Paper #37:</b> Comparison of Segmental Lordosis and Global Spinopelvic Alignment after Single-Level Lateral Lumbar Interbody Fusion or Transforaminal Lateral Interbody Fusion  <i>Y. Saadeh; J. Joseph; B. Smith; M. Kirsch; A. Sabbagh; and P. Park</i></p>
11:31	<p><b>YS Paper #38:</b> A Novel, Single Step Technique to Percutaneously Insert Lumbar Pedicle Screws Significantly Reduces Surgical Time and Radiation Exposure to the Patient and the Surgeon  <i>Steven DeLuca, DO, MS</i></p>
11:34	Discussion
11:39	<p><b>YS Paper #39:</b> Single-Level Instrumented Lumbar Interbody Fusion: The Impact of Ambulatory Surgical Centers on Evidence-Based Medicine  <i>Dwight Tyndall, MD; William Zuke, MD; and Adam Wright-Chisem, BA</i></p>
11:42	<p><b>YS Paper #40:</b> Minimally Invasive Posterior Fossa Tubular Decompression for the Management of a Chiari 1.5 Malformation: Technical Note, Proof of Concept and Illustrative Case  <i>J. Soriano-Sánchez; J. Romero-Rangel; S. Soriano-Solis; M. Soto-Garcia; and P. Trejo-Huerta</i></p>
11:45	<p><b>YS Paper #41:</b> MIS TLIF Using A Lordotic Interbody Device That Expands in Both Axial and Sagittal Planes  <i>Hani Malone, MD and Richard Fessler, MD, PhD</i></p>
11:48	<p><b>YS Paper #42:</b> The Impact of Interbody Location on Segmental Height and Angular Correction in an Expandable Articulating Minimally Invasive Transforaminal Interbody Fusion  <i>L. Massie; M. Macki; H. Zakaria; and V. Chang</i></p>
11:51	Discussion
11:56	<p><b>YS Paper #43:</b> An Anatomic Shape Guide to MRI Lumbar Foraminal Stenosis  <i>G Grady McBride, MD</i></p>
11:59	<p><b>YS Paper #44:</b> The Small Gets Smaller: Feasibility of 14mm Tubular Retractor in the Management of Simple and Complex Cases Of Lumbar Disc Herniations  <i>Arvind Kulkarni</i></p>
12:02 pm	<p><b>YS Paper #45:</b> Cost of Lateral Lumbar Interbody Fusion in the Elderly  <i>Nima Alan; Andrew Faramand; Nitin Agarwal; David J. Salvetti; David K. Hamilton; David O. Okonkwo; and Adam S. Kanter, MD</i></p>
12:05	<p><b>YS Paper #46:</b> Fully-endoscopic Bilateral Cervical Laminotomy with Unilateral Approach for Cervical Spinal Stenosis and Myelopathy: A Case Series  <i>Jian Shen, MD, PhD</i></p>
12:08	Discussion
12:13	<p><b>PANEL:</b> Career Development and Life Balance  <hr/> <b>PANELISTS:</b> G. Anderson, MD; L. Khoo, MD; A. Kumar, MD; L. Robinson, MD &amp; M. Wang, MD</p>

# Friday Program, *continued*

12:35	Lunch; Exhibit Viewing	<i>Roman Ballroom</i>
12:50–1:10	<b>Meet-the-Expert Non-CME Session</b> <b>Leading. Expanding. Advancing. Insights to Lateral Procedural Solutions and Technology</b> <i>Adam Kanter, MD</i> Supported by: NuVasive	<i>Roman Ballroom</i>
12:35–1:15	<b>Young Surgeon Non-CME Workshop with Lunch</b> <b>Challenging Cases Debated: MI TLIF vs ALIF</b> <i>Kern Singh, MD &amp; Kornelis Poelstra, MD</i> Supported by: K2M	<i>Pompeian III-IV</i>
<b>CONCURRENT SESSION 3A   Cervical Spine and Cervical Arthroplasty</b>		<i>Pompeian I-II</i>
MODERATORS: F. Phillips, MD & P. Nunley, MD		
<b><i>Controversy: Cervical Arthroplasty is Underutilized.</i></b>		
1:20	Introduction	
	<b>DEBATE:</b> Single Level Middle Aged Patient with Soft Herniated Disc at 5-6 and Unilateral SXS. The Best Option is:	
1:22	Case Example	
1:25	TDR	<b>S. QURESHI, MD</b>
1:30	MIS PCMF	<b>K. FOLEY, MD</b>
1:35	ACDF	<b>H. BAE, MD</b>
1:40	Endoscopic	<b>J. YUE, MD</b>
1:45	Discussion	
1:49	Audience Response	
1:51	<b>CASE PANEL DISCUSSION:</b> 68 y/o Female, with Osteopenia, Loss of Lordosis, Degen. Disc Collapse, 2 level Dz, Bilateral SXS, Mild Long Tract Signs. The Best Option is: Posterior, Multilevel; ACDF; Multi level TDR  PANEL: H. Bae, MD; K. Foley, MD; S. Qureshi, MD & J. Yue, MD	
2:06	Audience Response	
2:08	Neuromonitoring in Minimally Invasive Cervical Spine Surgery: What's the Value? When? Why?	<b>K. RADCLIFF, MD</b>
2:14	Are ASCs Suitable for ACDFs / TDRs?	<b>K. FOLEY, MD</b>
2:20	What are the Guidelines for Return to Work or Play after Surgery?	<b>M. OPPENLANDER, MD</b>
2:26	Discussion	
	Complications Avoidance and Management:	
2:32	Minimizing Collateral Damage with ACDF	<b>R. HUANG, MD</b>
2:38	Posterior Cervical Spine Surgery	<b>I. MOSS, MD</b>
2:44	Bailout Options for MIS Intra op Instrumentation Failures	<b>G. ANDERSON, MD</b>
2:49	Discussion	
2:55	Refreshment Break; Exhibit Viewing	<i>Roman Ballroom</i>

# Friday Program, *continued*

## CONCURRENT SESSION 3B | Robotics, Navigation, Image Guidance *Florentine Ballroom*

MODERATORS: A. Kulkarni, MD; G. Mundis, MD & S. Qureshi, MD

### **Controversy: Is Robotics the Next Lumbar TDR?**

1:20	Introduction	
	<b>DEBATE:</b> Putting Pedicle Screws in a Twisted Spine. The Best Technique is:	
	<b>MODERATOR:</b> G. Mundis, MD	
1:22	<b>CASE:</b> Rotary Scoliosis in Elderly, Small Female	
1:25	Real Surgeons Free Hand	<b>B. STAUB, MD</b>
1:30	Navigation for Feel and 3D View	<b>J.P. MOBASSER, MD</b>
1:35	Robots Know Best	<b>I. LIEBERMAN, MD</b>
1:40	Discussion	
1:45	Audience Response	
1:55	Options for Reducing Radiation Exposure in Minimally Invasive Spine Surgery, Even When Budgets are Tight	<b>S. MCANANY, MD</b>
2:03	Principles of Navigation: Review of Current Technologies	<b>B. STAUB, MD</b>
2:11	2D vs. 3D Image Guidance: How Much is Enough?	<b>P. PARK, MD</b>
2:19	Discussion	
2:27	Robotic Spine Surgery: Where are We Today and Where are We heading?	<b>J. ROH, MD</b>
2:37	3D Navigation and Robotics: Complications Avoidance and Management	<b>R. LEHMAN, MD</b>
2:47	Discussion	
2:55	Refreshment Break; Exhibit Viewing	<i>Roman Ballroom</i>

## SESSION 4 | Technology Updates—Non-CME Session *Florentine Ballroom*

MODERATORS: K. Radcliff, MD & W. Smith, MD

3:20	<b>Advanced MIS TLIF featuring CD HORIZON™ SOLERA™ VOYAGER Awl-Tap Screw (ATS™) and StealthStation™ S8 Surgical Navigation System</b> <i>Jean Pierre Mobasser, MD</i> Supported by: Medtronic
3:26	<b>NanoLOCK Technology and Clinical Outcomes Update</b> <i>Robert Eastlack, MD</i> Supported by: Titan Spine
3:32	<b>Design Overview and Early Clinical Results of a Novel, Deployable Lateral Device</b> <i>Clint P. Hill, MD</i> Supported by: Spineology
3:38	<b>The Science of Tritanium, More than Surface</b> Supported by: Stryker



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3:44	<b>ExcelsiusGPS® First Clinical Experience</b> Sabino D'Agostino, DO, FAANS, FACS Supported by: Globus Medical
3:50	<b>UNLEASH™ MIS TLIF Solution: Improve Efficiency and Reduce Cost in MIS Lumbar Fusion</b> John Hall, MD Supported by: DePuy
3:56	Discussion

<b>SESSION 5</b>	<b>Ambulatory Spine Surgery / Multimodal Analgesia Techniques</b>	<i>Florentine Ballroom</i>
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**MODERATORS:** K. Radcliff, MD & W. Smith, MD

**Controversy: Does Ambulatory Surgery Benefit Patient Outcome?**

Transitioning Spine Surgery from the Hospital to an Ambulatory Surgery Center:		
4:00	Which Cases Can I Safely Do in an ASC?	<b>N. ASHRAF, MD</b>
4:07	ALIF in Same Day Surgery Setting	<b>J. SCHOEFF, MD</b>
4:14	My Experience and Learning Curve	<b>K. SINGH, MD</b>
4:21	Discussion	
4:26	How to Keep Hospital Administrators Happy While Taking Cases Out of the Hospital	<b>F. PHILLIPS, MD</b>
4:33	Do the Economics of ASCs Make Sense in 2018?	<b>H. BAE, MD</b>
4:40	Discussion	
4:45	Multimodal Analgesia and Anesthesia Techniques for Same Day Discharge Success in Spine Surgery—with Video Demo of TAP Block for ALIF and LLIF	<b>E. SOFFIN, MD</b>
4:55	Use of Opioids in the Ambulatory Setting	<b>G. POLSTON, MD</b>
5:03	Novel Methods for Treating Postoperative Pain Following Spinal Surgery	<b>P. WHANG, MD</b>
5:11	Discussion	

**DEBATE:** Doing Spine Surgery in an ASC

**MODERATOR:** W. Taylor, MD

5:16	Is Better for Your Patients	<b>M. WANG, MD</b>
5:22	Is Worse for the Patient (But Good for the Surgeon's Wallet)	<b>G. MUNDIS, MD</b>
5:28	Discussion	
5:33	Audience Response	
5:35–6:35	<b>Adjourn; Welcome Reception</b>	<i>Roman Ballroom</i>

# Saturday Program

7:00 am	Registration	
	<b>Non-CME Technology Workshop with Breakfast</b>	
7:45	<b>Minimally Invasive Surgical Correction for Advanced Deformity</b> <i>Neel Anand, MD</i> Supported by: Medtronic	<i>Pompeian I-III</i>
<b>SESSION 6   Degenerative Spine</b>		<i>Florentine Ballroom</i>
MODERATORS: K. Foley, MD & S. Rohidas, MD		
<b><i>Controversy: Do Standard Degenerative Spine Cases Really Need MIS Approaches?</i></b>		
8:40	Welcome	
	<b>DEBATE:</b> For a Herniated Disc the Best Approach is:	
8:45	<b>CASE:</b> Free Fragment, L4-5 Disc	
8:48	Tubular Approach (incl. video demo)	<b>A. KUMAR, MD</b>
8:56	Endoscopic Approach (incl. video demo)	<b>C. HOFSTETTER, MD</b>
9:04	Micro-discectomy (incl. video demo)	<b>L. KHOO, MD</b>
9:12	Discussion	
9:16	Audience Response	
	<b>DEBATE:</b> L4-5 Grade 1 Spondylolisthesis / Stenosis. The Best Technique is:	
9:19	Case Example	
9:22	MIS TLIF	<b>J.P. MOBASSER, MD</b>
9:28	Awake Fusion	<b>M. WANG, MD</b>
9:34	Decompression without Fusion	<b>S. RYU, MD</b>
9:40	Indirect Decompression and LLIF	<b>R. AMARAL, MD</b>
9:46	Discussion	
9:52	Audience Response	
	<b>DEBATE:</b> 2-level L4-S1 Decompression and Fusion. The Best Technique is:	
MODERATOR: S. Qureshi, MD		
9:55	Case Example	
9:57	2-level MIS TLIF	<b>B. STAUB, MD</b>
10:03	2-level ALIF with Posterior Fixation	<b>J. URIBE, MD</b>
10:09	OLIF/LLIF	<b>R. LEHMAN, MD</b>
10:15	Discussion	
10:20	Audience Response	
10:23	Presentation of Best Paper Award	
10:30	Refreshment Break; Exhibit Viewing	<i>Roman Ballroom</i>

# Saturday Program, *continued*

## Concurrent Sessions: Free Papers

### SESSION 7A | Emerging Technology, Navigation, & Complications Free Papers

*Florentine Ballroom*

**MODERATORS:** R. Lehman, MD & P. Mummaneni, MD

- |       |   |
|-------|---|
| 10:55 | <p><b>Paper #47:</b> A Quantitative Assessment of the Accuracy and Reliability of Robotic Guidance for Lumbar Fusion: A Technique and Application Accuracy<br/> <i>Cory Hartman, MD, MBA; Jakub Godzik, MD; Corey Walker, MD; Clinton Morgan, MD; Steven Chang, MD; Randall Porter, MD; Laura Snyder, MD; and Juan Uribe, MD</i></p>    |
| 10:59 | <p><b>Paper #48:</b> Accuracy and Efficiency of Robot-Assisted Pedicle and S2AI Screw Cannulation for Adult Thoracolumbar and Lumbar Fusion: Success and Failure in a Single Surgeon’s First 110 Cases and 816 Pedicles<br/> <i>A. Ha</i></p>   |
| 11:03 | <p><b>Paper #49:</b> Robotics in Spine Surgery: The Use of Pre-op Planning to Optimize the Outcome of Spondylolisthesis Reduction<br/> <i>Isador Lieberman and Xiaobang Hu</i></p>  |
| 11:07 | <p><b>Paper #50:</b> Preliminary Experience of Mazor X Robot-Assisted Spine Surgery—A Single Institution Study<br/> <i>Terrence Julien, MD</i></p>  |
| 11:11 | Discussion  |
| 11:19 | <p><b>Paper #51:</b> Incidence of Fusion Across Total Disc Replacement with Heterotopic Ossification: Are Ball and Socket Disc Replacements Fusing with and without Radiographic Evidence<br/> <i>Fabio Pencle, MBBS; Moawiah Mustafa; Luai Mustafa; Kathleen Quijada; Jason Seale, MBBS; and Kingsley Chin, MBBS</i></p>               |
| 11:23 | <p><b>Paper #52:</b> The Difference in Surgical Site Infection Rates between Open and Minimally Invasive Spine Surgery for Degenerative Lumbar Pathology: A Retrospective Single Center Experience of 1,442 Cases<br/> <i>K. Mueller; D. Zhao; O. Johnson; F. Sandhu; and J. Voyadzis</i></p>   |
| 11:27 | <p><b>Paper #53:</b> Avoiding Unnecessary Contamination of Implant-Bone Interface: A Multi-center Study<br/> <i>Aakash Agarwal, PhD; Boren Lin, PhD; Christian Schultz, MD; Vijay Goel, PhD; Jeffrey Wang, MD; Steve Garfin, MD; Neel Anand, MD; Hossien Elgafy, MD; Dennis McGowan, MD; Chris Karas, MD; and Anand Agarwal, MD</i></p> |
| 11:31 | <p><b>Paper #54:</b> Management of CSF leakage Occurring During Minimally Invasive Decompressive Spine Surgery in an Ambulatory Surgery Center<br/> <i>Thomas Francavilla, MD; Michael Weiss, DO; and Reginald Davis, MD</i></p>  |
| 11:35 | Discussion  |
| 11:43 | <p><b>Paper #55:</b> Two-Year Outcomes of Patients Treated with BVN Ablation for the Relief of Chronic Low Pain: Results of the SMART Trial<br/> <i>Jeffrey Fischgrund; Hyun Bae; Rick Sasso; and Alfred Rhyne</i></p>  |
| 11:47 | <p><b>Paper #56:</b> A Prospective Multicenter Trial of an Expandable Graft-Containing Fabric Mesh System for Minimally Invasive Single-Level Lumbar Interbody Stabilization: Updates on the Spineology Clinical Outcomes Trial (SCOUT)<br/> <i>K. Huang; J. Chi; Z. Moses; M. Krag; P. Nunley; M. Bydon; and S. Lavoie</i></p>         |

# Saturday Program, *continued*

11:51	<p><b>Paper #57:</b> Molybdenum Rhenium Alloy provides Superior Biomechanical and Wear Properties for a New Generation of Spine Implants  <i>Kornelis Poelstra, MD, PhD; Jorge Isaza, MD; Kee Kim, MD; Raphael Roybal, MD; Cyrus Ghavam, MD; Samuel Joseph, MD; and Matthew McGirt, MD</i></p>
11:55	<p><b>Paper #58:</b> A Single Surgeon Experience and Results Between Multi-level Lumbar Laminectomy with Microscopic Tubular Approach and Fully-endoscopic Approach: A Report of Over 1000 Cases and Up to 6 Years Follow-up  <i>Jian Shen, MD, PhD</i></p>
11:59	Discussion
12:07 pm	<p><b>Paper #59:</b> The Influence of Conflicts of Interest on Outcomes in the Lumbar Disc Arthroplasty Literature  <i>Jordan Guntin, BS; Kaitlyn Cardinal, BS; Brittany Haws, MD; Benjamin Khechen, BA; Dil Patel, BS; Simon Lalehzarian, MS; and Kern Singh, MD</i></p>
12:11	<p><b>Paper #60:</b> Appropriateness of Elective Outpatient Spine Surgery Referral  <i>F. Sourial; B. Woods; G. Schroeder; D. Kaye; C. Kepler; V. Hsu; G. Lee; M. Kurd; J. Rihn; G. Anderson; A. Hilibrand; A. Vaccaro; and K. Radcliff</i></p>
12:15	<p><b>Paper #61:</b> Assessing the True Cost of Minimally Invasive TLIF in Patients with Workers' Compensation using Tdabc  <i>Daniel Bu; Samuel Overley; Steven McAnany; Todd Albert; and Sheeraz Qureshi</i></p>
12:19	Discussion
<b>SESSION 7B   Asian Perspectives Free Papers</b> <span style="float: right;">Pompeian I-III</span>	
<b>MODERATORS:</b> J.S. Kim, MD; S. Rohidas, MD & S. Ryu, MD	
10:55	<p><b>Paper #62:</b> Clinical and Radiological Outcome of Mini Modified Open and Open TLIF—A Comparative Study  <i>F. Syed</i></p>
10:59	<p><b>Paper #63:</b> Comparative Clinical Analysis of OLIF51 and Percutaneous Posterior Fixation in Lateral Position vs MIS-TLIF for Lumbosacral Degenerative Disorders  <i>Yoshihisa Kotani; Richard Hynes; Yoshinao Koike; Hidemasa Terao; Yumejiro Nakamura; Hiroyuki Tachi; Yusuke Kameda; and Yasushi Yabuuchi</i></p>
11:03	<p><b>Paper #64:</b> Short term Results of Lumbar Interbody Fusion Using Cortical Bone Trajectory Screw Technique  <i>D. Choi; J. Kim; H. Lee; M. Shin; and S. Kim</i></p>
11:07	<p><b>Paper #65:</b> Surgeon, Staff, and Patient Radiation Exposure in MIS TLIF: Impact of 3D CT-Based Navigation in comparison to Conventional Fluoroscopy Aided Technique  <i>Arvind Kulkarni</i></p>
11:11	Discussion
11:19	<p><b>Paper #66:</b> Transforaminal Endoscopic Thoracic Discectomy  <i>Junseok Bae; Sang-Ha Shin; Sang-Ho Lee; and Han-Joong Keum</i></p>
11:23	<p><b>Paper #67:</b> Percutaneous Transforaminal Endoscopic Spine System with Target Technique for Treatment of Lumbar Spinal Disc Herniation in Scoliosis Patients  <i>Qingbing Meng and Wensheng Zhang</i></p>

# Saturday Program, *continued*

11:27	<b>Paper #68:</b> Surgical Considerations for Percutaneous Endoscopic Lumbar Discectomy at L5/S1 Level with Quantified Assessment <i>G. Fan</i>
11:31	<b>Paper #69:</b> Risk Factor Analysis of Proximal Junctional Kyphosis after Surgical Treatment with OLIF for Adult Spinal Deformity <i>Yoshinao Koike; Yoshihisa Kotani; Hidemasa Terao; Yoshiaki Hosokawa; Hideyuki Kobayashi; Yusuke Kameda; and Hideaki Fukaya</i>
11:35	Discussion
11:43	<b>Paper #70:</b> Diffusion-weighted MR Neurography for the Preoperative Assessment of Nerve Root Anomaly in Minimally Invasive Spine Surgery <i>Yukihiro Nakagawa, MD, PhD; Hiroshi Yamada, MD, PhD; Mamoru Kawakami, MD, PhD; Hiroshi Iwasaki, MD, PhD; Akihito Minamide, MD, PhD; Masatoshi Teraguchi, MD, PhD; Ryohei Kagotani, MD, PhD; Shunji Tsutsui, MD, PhD; Masanari Takami, MD, PhD; Hiroshi Hashizume, MD, PhD; and Yasutsugu Yukawa, MD, PhD</i>
11:47	<b>Paper #71:</b> Contralateral Radiculopathy after Minimally Invasive Oblique Lumbar Interbody Fusion <i>Amit Jhala, MS DNB</i>
11:51	<b>Paper #72:</b> Indirect Decompression of Neural Foramen after Minimally Invasive Retroperitoneal Anterolateral Interbody Fusion: An MRI Study <i>A. Mahatthanatrakul; V. Kotheeranurak; G. Lin; H. Chung; J. Hur; and J. Kim</i>
11:55	<b>Paper #73:</b> Isthmic Approach for Transforaminal Endoscopic Lumbar Discectomy at the L5-S1 Level <i>Junseok Bae; Sang-Ha Shin; Han-Joong Keum; and Sang-Ho Lee</i>
11:59	Discussion
12:07 pm	<b>Paper #74:</b> A Novel Technique of Spinous Process Splitting Approach in Microscopic Spinal Decompression Surgery for Lumbar Canal Stenosis: An Outcome Study <i>Ashish Jaiswal, FNB, MS; Siva Reddy, MBBS, DNB; and Satish Kumar, MBBS, DNB</i>
12:11	<b>Paper #75:</b> Degenerative Spondylolisthesis: Is It Always Unstable? A New Scoring System to Aid Decision Making and Apply Value Based Spine Care <i>Arvind Kulkarni</i>
12:15	<b>Paper #76:</b> Kyphoplasty with Cranio-Caudal Expandable Implant: An Operative Management for Osteoporotic Fractures in Elderly Patients <i>Ee Pee Su, MD; Anand Kumar, MBBS; and Chor Ngee Tan, MBBS</i>
12:19	Discussion
12:25	Lunch; <b>Last Chance for Exhibit Viewing</b> <span style="float: right;"><i>Roman Ballroom</i></span>

# Saturday Program, *continued*

<b>SESSION 8   Technology Updates—Non-CME Session</b>		<i>Florentine Ballroom</i>
<b>MODERATORS:</b> G. Anderson, MD & M. Oppenlander, MD		
1:05	<b>A Novel Mechanism of Action for Bone Formation with a Biomimetic Peptide: Attract, Attach, Activate</b> <i>Jeff Marx, MD</i> Supported by: Cerapedics	
1:11	<b>Driving Outcomes Through Patient Engagement in the Continuum of Care</b> <i>Jonelle Juricek</i> Supported by: Orthofix	
1:17	<b>PANORAMA® Retractor STACSM MIS Technique</b> <i>Adam Lewis, MD</i> Supported by: SpineCraft	
1:26	Discussion	

<b>SESSION 9   New Technology / Interbody Implant Surface Technologies / Fusion Options</b>		<i>Florentine Ballroom</i>
<b>MODERATORS:</b> G. Anderson, MD & M. Oppenlander, MD		
1:28	Raffle Drawing	
1:30	Porous PEEK and Titanium Coated Interbody Cages—Hype or Not?	<b>M. OPPENLANDER, MD</b>
1:38	Nanotechnology Improves Fusion—Real or Hype?	<b>P. SLOSAR, MD</b>
1:46	Cellular Allograft—As Good As BMP?	<b>C. UPADHYAYA, MD</b>
1:54	Talk on Metallurgy	<b>H. BAE, MD</b>
2:02	Discussion	
2:08	Interspinous Decompression Devices—Do They Have a Role?	<b>P. NUNLEY, MD</b>
2:14	TLIF Expandable Cage—Straight Oblique vs Banana Cage	<b>V. CHANG, MD</b>
2:20	Discussion	
2:27	Lateral Expandable Cage Technology	<b>R. EASTLACK, MD</b>
2:35	Fenestrated Pedicle Screws to Optimize Fixation in Osteoporosis or Tumor	<b>K. THAN, MD</b>
2:43	Endoscopic Fusion	<b>W. TAYLOR, MD</b>
2:51	Discussion	
<b>DEBATE:</b> PEEK vs Titanium: Which is Better?		
<b>MODERATOR:</b> S. Qureshi, MD		
2:56	PEEK Cages are Best to Decrease Subsidence and Obtain Fusion	<b>N. ANAND, MD</b>
3:01	Titanium Cages are Best for Osteointegration	<b>S. BERVEN, MD</b>
3:06	Discussion	
3:11	Audience Response	

# Saturday Program, *continued*

<b>SESSION 10   Complications—Avoidance and Management</b>		<i>Florentine Ballroom</i>
<b>MODERATORS:</b> L. Khoo, MD & L. Pimenta, MD		
	Review of Common Complications, Methods for Management and Avoidance:	
3:14	LLIF	<b>A. KANTER, MD</b>
3:19	OLIF	<b>R. LEHMAN, MD</b>
3:24	MIS TLIF	<b>L. KHOO, MD</b>
3:30	Endoscopic Decompression	<b>J.S. KIM, MD</b>
3:36	Anterior Column Realignment	<b>J. URIBE, MD</b>
3:42	Discussion	
3:45	MIS Strategies to Treat Symptomatic Adjacent Segment Disease	<b>Z. RAY, MD</b>
3:51	Optimizing Management of Osteoporotic Patients who undergo MIS Fusion	<b>L. PIMENTA, MD</b>
3:57	Discussion	
4:05	Adjourn	