COURAGE, RESILIENCE, AND EXCELLENCE: SETTING THE PATH

Dear Colleague:

We would like to invite you to join us for Spine Summit 2021, the 37th Annual Meeting of the Joint Section on Disorders of the Spine and Peripheral Nerves. The meeting will be held in person July 28–31, 2021, in sunny San Diego, California, at the gorgeous Hilton San Diego Bayfront. It may look and feel a bit different, but please know that we have your safety, health, and travel concerns as our top priority at this event. We are confident that attendees and industry leaders from around the world will be able to gather to discuss topics under our 2021 theme, Courage, Resilience, and Excellence: Setting the Path.

The first and most exciting spine meeting of the year will deliver “can’t miss” scientific sessions, relevant special courses, compelling breakouts, and spirited debates on controversial topics in our field. You’ll also have the opportunity to collaborate with spine and peripheral nerve surgeons at the forefront of the field, discover new technology and innovations, and discuss strategies to find balance and direction in a time of rapid and meaningful change in health care.

This year, we are proud to honor Neurosurgery Honored Guest, Gregory R. Trost; Orthopedics Honored Guest, Sigurd Berven; Peripheral Nerve Honored Guest, Eric L. Zager; and Neurosurgery Meritorious Awarded, Nicholas Theodore. These outstanding leaders in the field will be sharing their knowledge throughout the program.

In addition to oral presentations showcasing the best ongoing research in our field, we continue to showcase residents’ scientific contributions with the Charlie Kuntz Scholarship Awards, the J.A.N.E. Award, the Mayfield Awards, and the Kline Peripheral Nerve Top Abstract Award. Special speaker Richard H. Carmona, M.D., M.P.H., FACS, 17th Surgeon General of the United States, will discuss “Leading Through Crisis” in a special session.

Be sure to visit our cutting-edge Exhibit Hall to see the latest in technology, products, and services. As always, you’ll enjoy a lively Opening Reception and Young Neurosurgeons’ Reception and Dinner. Don’t forget to carve out time to visit the incredible San Diego restaurants, San Diego Zoo, museums, and other attractions!

The 37th Annual Meeting of the Joint Section on Disorders of the Spine and Peripheral Nerves provides you an unparalleled opportunity to stay on the cutting edge of spine and peripheral nerve surgery, while enjoying the world-class atmosphere and accommodations in San Diego!

Please make your travel arrangements and register today at spinesection.org.

Sincerely

Michael P. Steinmetz
Section Chair

Luis M. Tumialán
Annual Meeting Chair

Erica F. Bisson
Scientific Program Chair

Meeting Highlights

- 10 Special Courses
  - NEW! Innovations in Peripheral Nerve Surgery
  - NEW! Cervical Spinal Cord Injury: What Every Neurosurgeon Needs to Know
  - NEW! Pediatric Spinal Pathology for the Adult Spine Surgeon
  - NEW! Starting Your Career: Practical Tips for Success
  - NEW! Practical Matters: What Every APP/Surgeon Team Needs to Know
  - Cahill Controversies Session
  - Crossfire: Finesse or Brute Force (Happy Hour Debates with Beer and Wine)
  - Dinner Seminar featuring our Honored Guests
  - Oral Presentations, Charles Kuntz Scholars, Mayfield Awards, and J.A.N.E. Award
  - APRN & PAs Seminar (complimentary for PAs and RNs)

Important Dates

**JULY 2, 2021**
Advance registration and housing deadline

**JULY 12, 2021—Cancellation Deadline**
Before July 12, a full registration refund will be issued less $100 processing fee. Special courses, seminars, and social events will be refunded in full until this date.

Absolutely no refunds will be given after July 12, 2021, regardless of cause.
### WEDNESDAY
**JULY 28, 2021**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>11:00 am–5:30 pm</td>
<td>Registration</td>
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<tr>
<td>12:00–1:00 pm</td>
<td>Non-CME Pre-Meeting Sponsored Lunch Symposia</td>
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</tbody>
</table>
| 1:30–5:30 pm   | **Special Course 1**
|                | Novel and Emerging Technologies in Spine Surgery in collaboration with SMISS |
| 6:30 am–6:30 pm | Registration                                                          |
| 6:30–7:30 pm   | Complimentary Breakfast                                               |
| 7:00–7:45 am   | **Challenging Cases 1**
|                | Oral Board-style Challenging Cases: Cervical                          |
| 7:45–8:00 am   | Opening Remarks                                                       |
| 8:00–9:30 am   | **Scientific Session 1**
|                | Resilience: 2020 Lessons Learned                                      |
| 9:00 am–4:30 pm| Exhibit Hall Open                                                     |
| 9:30–10:15 am  | Beverage Break and What's New Sessions in the Exhibit Hall            |
| 10:15 am–12:00 pm | **Scientific Session 2**
|                | Courage: From Learner to Learned (What My Mentors Taught Me That Has Shaped My Career and How that Translates to How I Educate My Trainees) |
| 12:00–1:00 pm  | • Non-CME Sponsored Lunch Symposia                                    |
|                | • Lunch in the Exhibit Hall                                           |
| 1:00–2:30 pm   | **Scientific Session 3**
|                | Innovative Technology Special Session: Operative Video Segments       |
| 2:30–3:15 pm   | Beverage Break and What’s New Sessions in the Exhibit Hall            |
| 3:15–4:25 pm   | • Kuntz Scholar Abstracts
|                | • Kuntz Scholar Abstracts
|                | • Kuntz Scholar Abstracts
|                | • Kuntz Scholar Abstracts
|                | • Minimally Invasive/Motion Preservation Abstract Breakout Session    |
| 4:30–6:30 pm   | **Crossfire: Finesse or Brute Force (Happy Hour Debates with Beer and Wine)** |

### THURSDAY
**JULY 29, 2021**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:30 am–6:30 pm</td>
<td>Registration</td>
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<tr>
<td>6:30–7:30 pm</td>
<td>Complimentary Breakfast</td>
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</tbody>
</table>
| 7:00–7:45 am   | **Challenging Cases 2**
|                | Oral Board-style Challenging Cases: Lumbar                             |
| 8:00–9:30 am   | **Scientific Session 4**
|                | Excellence: Empowering Our Discipline                                  |
| 9:00 am–1:15 pm| Exhibit Hall Open                                                     |
| 9:30–10:15 am  | Beverage Break and What’s New Sessions in the Exhibit Hall            |
| 10:15 am–12:15 pm | **The Cahill Controversies**
|                | • Non-CME Sponsored Lunch Symposia                                    |
|                | • Lunch in the Exhibit Hall                                           |
| 12:15–1:15 pm  | **Special Course 6**
|                | NEW! Pediatric Spinal Pathology for the Adult Spine Surgeon           |
| 12:30 pm       | DSPN Business Meeting                                                 |
| 1:30–3:30 pm   | **Special Course 7**
|                | Treatment and Complication Avoidance in the Management of Spinal Tumors|
|                | Special Course 8 Spine Summit Grand Rounds: Difficult Cases- The Decision-Making Dilemma |
| 3:15–4:25 pm   | • Kuntz Scholar Abstracts
|                | • Kuntz Scholar Abstracts
|                | • Kuntz Scholar Abstracts
|                | • Minimally Invasive/Motion Preservation Abstract Breakout Session    |
| 4:30–6:30 pm   | **Crossfire: Finesse or Brute Force (Happy Hour Debates with Beer and Wine)** |

### FRIDAY
**JULY 30, 2021**

<table>
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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:30 am–4:30 pm</td>
<td>Registration</td>
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<tr>
<td>6:30–7:30 am</td>
<td>Complimentary Breakfast</td>
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</tbody>
</table>
| 7:00–8:00 am   | **Challenging Cases 3**
|                | Oral Board-style Challenging Cases: Peripheral Nerve                  |
| 8:00–9:30 am   | **Scientific Session 5**
|                | Setting the Path: A View to the Future                                |
| 9:00 am–1:15 pm| Exhibit Hall Open                                                     |
| 9:30–10:15 am  | Beverage Break and What’s New Sessions in the Exhibit Hall            |
| 10:15 am–12:15 pm | **Special Course 9**
|                | • Non-CME Sponsored Lunch Symposia                                    |
|                | • Lunch in the Exhibit Hall                                           |
| 12:30 pm       | DSPN Business Meeting                                                 |
| 12:30–12:30 pm | Registration                                                          |
| 6:30–7:30 pm   | Complimentary Breakfast                                               |
| 7:00–7:30 am   | **Challenging Cases 4**
|                | Oral Board-style Challenging Cases: Cervical                          |
| 8:00–9:30 am   | **Scientific Session 6**
|                | Excellence: Empowering Our Discipline                                  |
| 9:00 am–1:15 pm| Exhibit Hall Open                                                     |
| 9:30–10:15 am  | Beverage Break and What’s New Sessions in the Exhibit Hall            |
| 10:15 am–12:15 pm | **The Cahill Controversies**
|                | • Non-CME Sponsored Lunch Symposia                                    |
|                | • Lunch in the Exhibit Hall                                           |
| 12:30 pm       | DSPN Business Meeting                                                 |

### SATURDAY
**JULY 31, 2021**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>6:30 am–12:30 pm</td>
<td>Registration</td>
</tr>
<tr>
<td>6:30–7:30 am</td>
<td>Complimentary Breakfast</td>
</tr>
</tbody>
</table>
| 7:00–7:30 am   | **Challenging Cases 5**
|                | Oral Board-style Challenging Cases: Peripheral Nerve                  |
| 7:30–9:30 am   | • General Spine Surgery 1/ Trauma/Spinal Cord Injury Abstract Breakout Session |
|                | • General Spine Surgery 2/ Tumor/Opioids Abstract Breakout Session    |
|                | • General Spine Surgery 3/ Peripheral Nerve/Basic Science Abstract Breakout Session |
|                | • Spinal Deformity Abstract Breakout Session                         |
| 9:30–11:10 am  | **Scientific Session 7**
|                | Setting the Path: A View to the Future                                |
| 11:15 am–12:10 pm | Special Session: Business of Neurosurgery in collaboration with CSNS |
| 12:10–12:30 pm | DSPN Business Meeting                                                 |
| 12:30 pm       | Meeting Adjourns                                                      |
Friday, July 30, 2021
8:36–9:25 am
Special Speaker: “Leading Through Crisis”
Richard H. Carmona, M.D., M.P.H., FACS
17th Surgeon General of the United States

Born to a poor immigrant family in New York City, Dr. Richard Carmona experienced homelessness, hunger, and health disparities during his youth. The experiences greatly sensitized him to the relationships among culture, health, education and economic status, and ultimately shaped his future.

After dropping out of high school, Dr. Carmona enlisted in the U.S. Army in 1967 where he received a GED. By the time he left active duty, he was a Special Forces, combat-decorated Vietnam veteran. He then pursued a college degree and entered medical school at the University of California – San Francisco where he won the prestigious Gold Cane award as the top graduate.

Dr. Carmona became a surgeon with a subspecialty in trauma, burns, and critical care. He was recruited to Tucson to establish the first trauma system in southern Arizona, which he did successfully. Later, while working full time as a hospital and health system CEO, he earned a master’s degree in public health policy and administration at the University of Arizona.

Dr. Carmona has served for more than 34 years with the Pima County Sheriff’s Department in Tucson, including as deputy sheriff, detective, SWAT team leader and department surgeon. He is one of the most highly decorated police officers in Arizona, and his numerous awards include the National Top Cop Award, the National SWAT Officer of the Year, and the National Tactical EMS Award. Dr. Carmona is a nationally recognized SWAT expert and has published extensively on SWAT training and tactics, forensics, and tactical emergency medical support. Dr. Carmona has also served as a medical director of police and fire departments, and he is a fully qualified peace officer with expertise in special operations and emergency preparedness, including weapons of mass destruction.

In 2006 Vice Admiral Carmona successfully completed the statutory four-year term as Surgeon General and was named vice chairman of Canyon Ranch. He also served as CEO of the company’s health division and president of the Canyon Ranch Institute. Dr. Carmona continues his Canyon Ranch leadership role as the Chief of Health Innovations. He also serves on several public corporate boards and works with private equity and venture capital firms to identify emerging science and technology to translate to market for economic and public benefit.

Opening Reception
Wednesday, July 28, 2021
6:30–8:00 pm
Hilton San Diego Bayfront

Take in spectacular ocean views and watch the sunset while enjoying a lavish array of food and beverages as you network with friends and colleagues at the Opening Reception. Each medical attendee and spouse/guest registered for the meeting will receive one complimentary ticket. Please note this event is held outdoors. Resort casual attire is recommended.
WEDNESDAY | July 28, 2021

11:00 am–5:30 pm
Registration

12:00–1:00 pm
Pre-meeting Non-CME Sponsored Lunch Symposia

Special Course 1 $200
1:30–5:30 pm
Novel and Emerging Technologies in Spine Surgery
In collaboration with SMISS

Course Directors: Paul Park, Juan S. Uribe

Course Description: This course will cover the latest technological advances in the field of spinal surgery including surface technology, new biologics for fusion, expandable cages, new applications for navigation, robotics, among others. Many of these innovations have the potential to improve surgical efficiency, safety, and outcomes. Attendees will gain a better understanding of the basis for the technology, its applications clinically, evidence for the technology, outcomes and costs.

Learning Objectives: Upon completion of this course, participants will be able to:
- Identify current evidence supporting newer technologies such as expandable cages and surface technology
- Identify the role of robotics and its integration into spinal surgery
- Identify new applications for spinal navigation in minimally invasive and deformity surgery
- Evaluate the potential benefits of new imaging technology such as exoscopes

1:30–1:35 pm
Introduction
Paul Park, Juan S. Uribe

1:36–1:45 pm
Navigation-assisted Spinal Deformity Surgery
John H. Shin

1:46–1:55 pm
Navigation-assisted Lateral Surgery
Mark E. Oppenlander

1:56–2:05 pm
Pitfalls and Complication Avoidance with Navigation
J. Patrick Johnson

2:06–2:15 pm
Robot-assisted Interbody Fusion
Paul Park

2:16–2:25 pm
Robot-assisted Deformity Surgery
Ronald A. Lehman

2:26–2:35 pm
Cost Effectiveness of Navigation/Robotics
Dean Chou

2:36–2:45 pm
Radiation Reduction Technologies
Juan S. Uribe

2:46–2:49 pm
Questions and Discussion

2:50–3:19 pm
Hands-on Workshop (Navigation, AR, Robots)

3:20–3:40 pm
Break

3:41–3:50 pm
Expandable Cage Technology – Worth the Cost?
Victor W. Chang

3:51–4:00 pm
Surface Technology – Hype or Not?
Jay D. Turner

4:01–4:10 pm
Cellular Allograft – The Next BMP?
Khoi D. Than

4:11–4:20 pm
Novel Screw Technologies (One-step MIS Pedicle Screw, Fenestrated Screws, Etc.)
Michael Y. Wang

4:21–4:30 pm
Exoscopes and Virtual Reality: Moving Beyond Traditional Loupes and Microscopes
Daniel M. Sciubba

4:31–4:40 pm
Donald J. Blaskiewicz

4:41–4:50 pm
Questions and Discussion

4:51–5:30 pm
Hands-on Workshop (Robotics)

Special Course 2 $200
1:30–5:30 pm
Spinal Deformity: Applying Current Deformity Concepts to Your Practice, a Case-based Approach

Course Directors: Shay Bess, Kai-Ming G. Fu
Speakers: Sigurd Berven, Donald J. Blaskiewicz, Dean Chou, Serena Hu, Praveen V. Mummaneni, Gregory M. Mundis, Peter G. Passias, Themistocles Protopsaltis

Continued on page 6
Course Description: Through an interactive case-based format, this course will address deformity concerns commonly encountered by the practicing spine surgeon.

Learning Objectives: Upon completion of this course, participants will be able to:
- Identify deformity principles in regards to degenerative pathology
- Analyze the current state of less invasive techniques and deformity
- Identify the current operative options for managing deformity

1:30–1:35 pm
Welcome and Explanation of Course Format
Shay Bess, Kai-Ming G. Fu

1:36–2:00 pm
Applying Deformity Principles to Patients with Degenerative Cervical Disease
Gregory M. Mundis

2:01–2:25 pm
Indications for MIS Versus Open Deformity Surgery: MISDEF2 Algorithm
Dean Chou

2:26–2:50 pm
Multi-rod Solutions for Deformity: When to Consider?
Sigurd Berven

2:51–3:15 pm
Sacro-pelvic Considerations in Deformity Surgery
Serena Hu

3:16–3:30 pm
Break

3:31–3:55 pm
Using Navigation in Spinal Deformity
Peter G. Passias

3:56–4:20 pm
Minimally Invasive Approach Selection in Adult Deformity (Anterior, Lateral, and Posterior)
Praveen V. Mummaneni

4:21–4:45 pm
Complication Avoidance an Optimizing Long Term Outcomes in MIS Adult Deformity Surgery
Themistocles Protopsaltis

4:46–5:10 pm
Complication Management in Open Adult Deformity Surgery
Shay Bess

5:11–5:30 pm
Discussion and Participant Cases
Moderator: Donald J. Blaskiewicz

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**Special Course 3**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Description</th>
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<tbody>
<tr>
<td>1:30–5:30 pm</td>
<td>NEW! Innovations in Peripheral Nerve Surgery</td>
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<tr>
<td></td>
<td><strong>Course Directors:</strong> Holly Gilmer, Line G. Jacques</td>
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<tr>
<td></td>
<td><strong>Speakers:</strong> Simon Archibald, Justin M. Brown, Allan D. Levi, Mark A. Mahan, Wilson Z. Ray, Konstantin V. Slavin, Ian Valerio</td>
</tr>
</tbody>
</table>

Course Description: This new offering from the DSPN will highlight the newest and latest techniques in peripheral nerve surgery, from early diagnosis through optimal operative management.

Learning Objectives: Upon completion of this course, participants will be able to:
- Describe the results of early clinical trials for nerve transfer following SCI
- Demonstrate understanding of novel diagnostic modalities to assist in surgical decision making for PN surgery
- Discuss options for neuromodulation in PN disease

1:30–1:39 pm
Introduction
Holly Gilmer, Line G. Jacques

1:40–2:00 pm
Nerve Transfers for Spinal Cord Injury: A Clinical Trial
Wilson Z. Ray

2:01–2:21 pm
Quantitative Electrodiagnostic Studies to Improve Nerve Transfers
Justin M. Brown

2:22–2:42 pm
Cell Based Therapies for Nerve Regeneration
Allan D. Levi

2:43–3:03 pm
Perfusion Based Imaging of Nerves
Mark A. Mahan

3:04–3:14 pm
Questions and Discussion

3:15–3:35 pm
Target Muscle Reinnervation and Machine Interface
Ian Valerio

3:36–3:56 pm
Next Generation Conduits for Nerve Repair (Non-CME)
Simon Archibald

3:57–4:17 pm
Novel Neuromodulation for Peripheral Nerve
Konstantin V. Slavin

4:18–4:28 pm
Questions

4:29–5:30 pm
Panel Discussion
**Special Course 4**  
$200  
1:30–5:30 pm  
**Introduction to Spinal Coding: From Decompression to Deformity**

**Course Directors:** Mark E. Oppenlander, John K. Ratliff  
**Speakers:** Owoicho Adogwa, Joseph S. Cheng, Kurt M. Eichholz, Kristopher T. Kimmell, Cheerag D. Upadhyaya, Anand Veeravagu  
**Course Description:** What every graduation resident, spine fellow or young attending needs to know about coding spinal procedures in the first few years of practice. Origins of CPT and RVU will be presented along with the fundamentals of spinal coding. The course then transitions to case-based coding. The entire spectrum of spine cases from simple decompression to complex deformity will be presented and the correct coding reviewed.  
**Learning Objectives:** Upon completion of this course, participants will be able to:  
- Identify the origins of CPT, RVU and the RUC process  
- Demonstrate knowledge in the correct application of CPT codes for a variety of spinal procedures  
- Identify elements of practice management with an emphasis on spine

1:30–1:35 pm  
**Introduction**  
Mark E. Oppenlander

1:36–1:50 pm  
**Medicare, RVUs, CPT: How We Got Here**  
John K. Ratliff

1:51–2:05 pm  
**Basic Spine Coding: Cervical**  
Mark E. Oppenlander

2:06–2:20 pm  
**Basic Spine Coding: Lumbar**  
Owoicho Adogwa

2:21–2:35 pm  
Anand Veeravagu

2:36–2:50 pm  
Kurt M. Eichholz

2:51–3:05 pm  
Cheerag D. Upadhyaya

3:06–3:30 pm  
Joseph S. Cheng

3:31–3:45 pm  
**Break**

3:46–4:00 pm  
**Case-based Spinal Deformity Coding**  
John K. Ratliff

4:01–4:20 pm  
**Case-based Cervical Trauma Coding**  
Anand Veeravagu

4:21–4:40 pm  
**Case-based Thoracolumbar Trauma Coding**  
Cheerag D. Upadhyaya

4:41–5:00 pm  
**Obtaining an Authorization for Surgery and the Peer to Peer Process**  
Kristopher T. Kimmell

5:01–5:30 pm  
**Questions and Conclusion**
3:16–3:40 pm
Central Cord Syndrome
R. John Hurlbert

3:41–4:05 pm
Hypothermia for SCI
Allan D. Levi

4:06–4:30 pm
Future Therapies for SCI
Michael G. Fehlings

Seminar for APRN and PAs
3:00–5:00 pm
Complimentary for Registered Nurses & PAs

Course Director: Eric A. Potts

Speakers: Robert Evans, Erin Harrison, Angela M. Jolivette, Sara M. McEvoy, Emma Schulte, Andrea L. Strayer, Eeric Truumees

Course Description: Neurosurgery Advanced Providers and Physician Assistants are the target audience for this course which will cover the preoperative evaluation, perioperative management and postoperative management of neurosurgical spine patients. Special emphasis will be on teamwork, non-narcotic pain control, communication and use of order sets.

Learning Objectives: Upon completion of this seminar, participants will be able to:
- Generate a differential diagnosis for leg and arm pain
- Identify the impact of comorbidities on patient outcomes
- Describe the impact of preoperative and postoperative patient communication and setting expectation
- Identify the impact preoperative opioid use on postoperative pain control

3:00–3:12 pm
Overview of MRI Imaging Basics in the Cervical, Thoracic and Lumbar Spine
Eric A. Potts

3:13–3:25 pm
Management of Medical Comorbidities (DM, Anticoagulation, Nutrition)
Sara M. McEvoy

3:26–3:38 pm
Advanced Perioperative Management: Support Staff, Patient Education
Emma Schulte

3:39–3:51 pm
Post-operative Pain Management
Erin Harrison

3:52–4:04 pm
Essential Surgical Spine Anatomy for Advanced Providers: How to be the Ideal Surgical Assistant
Robert Evans

4:05–4:17 pm
Pre-operative Optimization for Postoperative Success
Andrea L. Strayer

4:18–4:30 pm
Pre-operative Optimization for Postoperative Success
Angela M. Jolivette

4:31–4:43 pm
Triaging Spinal Cord Injuries and Injuries to the Vertebral Column
Eeric Truumees

4:44 - 5:00 pm
Questions and Discussion

Opening Reception
6:30–8:00 pm
Hilton San Diego Bayfront
Take in spectacular ocean views and watch the sunset while enjoying a lavish array of food and beverages as you network with friends and colleagues at the Opening Reception. Get your groove on with live music that spans today’s hits, Motown, 70s dance, and classic rock with the Kicks Band. Each medical attendee and spouse/guest registered for the meeting will receive one complimentary ticket. Please note this event is held outdoors. Resort casual attire is recommended.

Dinner Seminar (includes three-course dinner and beverages) $200
8:00–10:00 pm

Moderator: Michael P. Steinmetz

Speakers: Sigurd Berven, Thomas E. Mroz, Nicholas Theodore, Gregory R. Trost

Seminar Description: An opportunity to interact with the 2021 Spine Summit Honored Guests, Gregory Tost, Sigurd Berven, as well as Meritorious Award Recipient Nicholas Theodore to learn their perspectives on the future of spine surgery. The DSPN Chair and his partner, Drs. Michael P. Steinmetz and Thomas E. Mroz, will present a perspective of the future of spine from a European perspective.

Learning Objectives: Upon completion of this symposium, participants will be able to:
- Identify the various trajectories that technology may lead the future of spinal surgery
- Identify how the future of healthcare will affect the practice of spinal surgery in years to come
- Identify those characteristics needed to remain relevant in the future world of spine care
## MEETING AGENDA

**THURSDAY | July 29, 2021**

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<thead>
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<td>7:00–7:45 am</td>
<td><strong>Challenging Cases 1</strong></td>
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<tr>
<td>7:45–8:00 am</td>
<td>Opening Remarks</td>
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<tr>
<td>7:45–7:54 am</td>
<td>Welcome</td>
</tr>
<tr>
<td>7:55–8:00 am</td>
<td>Introduction</td>
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<tr>
<td>8:00–9:30 am</td>
<td><strong>Scientific Session 1</strong></td>
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<tr>
<td>9:00–9:10 am</td>
<td>The Impact of COVID-19 on Spine Surgery: Our Patients and Our Trainees</td>
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<tr>
<td>8:11–8:16 am</td>
<td>Discussion</td>
</tr>
<tr>
<td>8:17–8:27 am</td>
<td>Preoperative Optimization for Spine Surgery (Prehab)</td>
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<td>8:28–8:33 am</td>
<td>Discussion</td>
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<tr>
<td>8:34–8:44 am</td>
<td>Lesson from CSM-S: Is Laminoplasty Superior?</td>
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<tr>
<td>8:45–8:50 am</td>
<td>Discussion</td>
</tr>
<tr>
<td>8:51–9:01 am</td>
<td>The Integration of Machine Learning into Practice Algorithms</td>
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<td>9:02–9:07 am</td>
<td>Discussion</td>
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<tr>
<td>9:08–9:18 am</td>
<td>Bone Science: Osteointegration, Fusion Biologics, Surface Science/</td>
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<tr>
<td>9:19–9:30 am</td>
<td>Nanotechnology</td>
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<td>9:30–10:15 am</td>
<td>Discussion and Summary of the Session</td>
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<tr>
<td>10:15 am–12:00 pm</td>
<td><strong>Scientific Session 2</strong></td>
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<tr>
<td>10:15–10:18 am</td>
<td>Introduction of Neurosurgery Honored Guest</td>
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<tr>
<td>10:19–10:38 am</td>
<td>Neurosurgery Honored Guest Presentation</td>
</tr>
<tr>
<td>10:39–10:42 am</td>
<td>Introduction of Orthopedics Honored Guest</td>
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<tr>
<td>10:43–11:03 am</td>
<td>Orthopedics Honored Guest Presentation</td>
</tr>
<tr>
<td>11:04–11:07 am</td>
<td>Introduction of Peripheral Nerve Honored Guest</td>
</tr>
</tbody>
</table>

### Challenging Cases 1

**Moderators:** Yi Lu, Laura A. Snyder

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>7:00–7:45 am</td>
<td>Oral Board-style Challenging Cases: Cervical</td>
</tr>
<tr>
<td>7:45–8:00 am</td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>7:45–7:54 am</td>
<td>Welcome</td>
</tr>
<tr>
<td>7:55–8:00 am</td>
<td>Introduction</td>
</tr>
</tbody>
</table>

### Scientific Session 1

**Moderators:** Scott A. Meyer, Robert G. Whitmore

**Speakers:** Zoher Ghogawala, Daniel J. Hoh, Thomas E. Mroz, Praveen V. Mummaneni, Daniel M. Sciubba

**Learning Objectives:** Upon completion of this session, participants will be able to:
- Describe the impact of the global pandemic on spine surgery
- Demonstrate understanding of optimizing patients to improve and the role of artificial intelligence
- Analyze latest techniques for biologics and optimal treatment for CSM

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00–8:10 am</td>
<td>The Impact of COVID-19 on Spine Surgery: Our Patients and Our Trainees</td>
</tr>
<tr>
<td>8:11–8:16 am</td>
<td>Discussion</td>
</tr>
<tr>
<td>8:17–8:27 am</td>
<td>Preoperative Optimization for Spine Surgery (Prehab)</td>
</tr>
<tr>
<td>8:28–8:33 am</td>
<td>Discussion</td>
</tr>
<tr>
<td>8:34–8:44 am</td>
<td>Lesson from CSM-S: Is Laminoplasty Superior?</td>
</tr>
<tr>
<td>8:45–8:50 am</td>
<td>Discussion</td>
</tr>
</tbody>
</table>
11:08–11:28 am
Peripheral Nerve Honored Guest Presentation
Eric L. Zager

11:29–11:34 am
Introduction of DSPN Chair
Edward C. Benzel

11:35 am–12:00 pm
DSPN Chair’s Address
Michael P. Steinmetz

12:00–1:00 pm
Lunch with Exhibitors or Attend a Non-CME Sponsored Lunch

Scientific Session 3
1:00–2:30 pm
Innovative Technology Special Session: Operative Video Segments

Moderators: Regis W. Haid, Michele M. Johnson
Speakers: Paul C. McCormick, Themistocles Protopsaltis, Christopher I. Shaffrey, Jian Shen, Juan S. Uribe, Jean-Paul Wolinsky

Learning Objectives: Upon completion of this session, participants will be able to:
- Identify a variety of surgical techniques for the management of the degenerating spine
- Identify patients who are ideal candidates for minimally invasive cervical and lumbar procedures
- Discuss limitations of deformity correction in a particular age group

1:00–1:08 pm
Endoscopic Spine Surgery
Jian Shen

1:09–1:14 pm
Discussion

1:15–1:23 pm
Single Position Lateral Surgery
Juan S. Uribe

1:24–1:29 pm
Discussion

1:30–1:38 pm
Intramedullary Tumor (Ependymoma or Astrocytoma), Nuances with Technique
Paul C. McCormick

1:39–1:44 pm
Discussion

1:45–1:53 pm
Correction of Chin on Chest Deformity: Nuances of Restoring Alignment (How Much is Enough)
Themistocles Protopsaltis

1:54–1:59 pm
Discussion

2:00–2:08 pm
Posterior-only En Bloc Spondylectomy in the T Spine
Jean-Paul Wolinsky

2:09–2:14 pm
Discussion

2:15–2:23 pm
PJK Prevention – Tethering, Vertebroplasty
Christopher I. Shaffrey

2:24–2:30 pm
Discussion and Summary of Session

2:30–3:15 pm
Beverage Break and What’s New Sessions in the Exhibit Hall

Peripheral Nerve Session
2:30–4:30 pm
Case-based Approaches to Peripheral Nerve Trauma and Other Conditions

Course Directors: Line G. Jacques, Robert J. Spinner

Course Description: This course will cover management of various peripheral nerve disorders. Using a case-based format, faculty will review indications, timing of intervention, and surgical approaches. Relevant anatomy, clinical presentation, and outcomes will be discussed. This course is an excellent review for oral board and maintenance of certification.

Learning Objectives: Upon completion of this session, participants will be able to:
- Describe a systematic approach to patients with a wide range of peripheral nerve disorders
- Develop a non-operative or operative management strategy for these conditions
- Discuss advantages and disadvantages and expected outcomes of various surgical approaches

2:30–2:37 pm
Localization of Peripheral Nerve Lesions
Robert J. Spinner

2:38–2:45 pm
Injury Types and Predicting Outcomes
Allen J. Belzberg

2:46–2:53 pm
Innovations for Nerve Regeneration
Rajiv Midha
2:54–3:01 pm  
**Principle of Nerve Repair: Techniques of Cooptations and Grafting**  
Allan D. Levi

3:02–3:09 pm  
**Principle of Nerve Repair: Techniques of Nerve Transfer**  
Wilson Z. Ray

3:10–3:39 pm  
**Case Based Discussion: Nerve Trauma**  

3:40–3:47 pm  
**Diagnosis and Treatment: UE Entrapment Syndromes**  
Eric L. Zager

3:48–3:53 pm  
**Diagnosis and Treatment: LE Entrapment Syndromes**  
Mark A. Mahan

3:54–3:59 pm  
**Principles of Management: Peripheral Nerve Tumors**  
Line G. Jacques

4:00–4:30 pm  
**Panel Discussion: Entrapments and Tumors**  
Allan J. Belzberg, Holly Gilmer, Marie-Noelle Hebert-Blouin, Andrew Jack, Rajiv Midha, Thomas J. Wilson, Christopher J. Winfree

3:15–4:30 pm  
**Oral Abstract Presentations**

**Learning Objectives:** Upon completion of this session, participants will be able to:
- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies
- List important areas for further knowledge development and research
- Discuss ongoing innovative clinical and basic science studies, and how they may impact current practice

**Kuntz Scholar Oral Abstract Presentations**

**Concurrent Session 1**  
**Moderators:** Kai-Ming G. Fu, Karthik Madhavan

**Concurrent Session 2**  
**Moderators:** Dani S. Bidros, John H. Shin

**Concurrent Session 3**  
**Moderators:** Hoon Choi, Jeremy Steinberger

**Minimally Invasive/Motion Preservation Abstract Breakout Session**  
**Moderators:** Kenneth M. Crandall, Anthony C. Lau

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**Special Message and Discount for Spine Section Members**

We recognize that the COVID pandemic has had an impact on our lives and practices. We would like to thank you for your support in these unprecedented times. As the nation recovers, we look forward to reconnecting in San Diego. The meeting may look and feel a bit different, but guidelines and safety measures will be in place.

In recognition of the hardship we all have endured, we would like to show support for our members. If you are an active member who was unable to pay 2020 membership dues, the Section will waive your 2020 membership dues if you register and attend this year’s Annual Meeting at the member rate. If you have already paid your 2020 membership dues, the Section will provide a $100 credit toward your already discounted member registration fee.

Register at spinesection.org by July 2, 2021, to save!
### 4:30–6:30 pm

**Crossfire: Finesse or Brute Force**  
*Happy Hour Debates with Beer and Wine*

**Moderators:** Darrel S. Brodke, Gerald E. Rodts  
**Neurosurgery Speakers:** Edward C. Benzel, Robert F. Heary, Praveen V. Mummaneni, Daniel M. Sciubba  
**Orthopedic Speakers:** Sigurd Berven, Charles Fischer, K. Daniel Riew, Jason Savage  
**Summary Speakers:** Wellington Hsu, Ilya Laufer, Catherine Miller-Simington, Alpesh Patel

#### Learning Objectives:
Upon completion of this session, participants will be able to:
- Analyze the impact of novel interbody technology
- Recognize optimal protocols for treatment of spine tumor patients
- Discuss treatment algorithms for cervical spine disease

<table>
<thead>
<tr>
<th>4:30–4:59 pm</th>
<th>Topic 1: Interbody Surface Technology Materials</th>
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</thead>
<tbody>
<tr>
<td>4:30–4:38 pm</td>
<td><strong>PRO:</strong> Better Fusion with New Devices</td>
</tr>
<tr>
<td></td>
<td>Sigurd Berven</td>
</tr>
<tr>
<td>4:39–4:47 pm</td>
<td><strong>CON:</strong> Just Another Expensive Cage</td>
</tr>
<tr>
<td></td>
<td>Praveen V. Mummaneni</td>
</tr>
<tr>
<td>4:48–4:53 pm</td>
<td><strong>Summary of Points</strong></td>
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<tr>
<td></td>
<td>Wellington Hsu</td>
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<tr>
<td>4:54–4:56 pm</td>
<td><strong>Questions from the Audience</strong></td>
</tr>
<tr>
<td>4:57–4:59 pm</td>
<td><strong>Audience Vote</strong></td>
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<thead>
<tr>
<th>5:00–5:29 pm</th>
<th>Topic 2: ERAS for Spine Tumor Surgery</th>
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<tbody>
<tr>
<td>5:00–5:08 pm</td>
<td><strong>PRO:</strong> Patients Don't Have Much Time to Live; Get Them Out of the Hospital ASAP. They are Perfect ERAS Candidates</td>
</tr>
<tr>
<td></td>
<td>Daniel M. Sciubba</td>
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<tr>
<td>5:09–5:17 pm</td>
<td><strong>CON:</strong> These People Are Sick and Not Well. ERAS is Absolutely Ridiculous</td>
</tr>
<tr>
<td></td>
<td>Charles Fisher</td>
</tr>
<tr>
<td>5:18–5:23 pm</td>
<td><strong>Summary of Points</strong></td>
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<tr>
<td></td>
<td>Ilya Laufer</td>
</tr>
<tr>
<td>5:24–5:26 pm</td>
<td><strong>Questions from the Audience</strong></td>
</tr>
<tr>
<td>5:27–5:29 pm</td>
<td><strong>Audience Vote</strong></td>
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<tr>
<th>5:30–5:59 pm</th>
<th>Topic 3: Single Level Arthroplasty is Suitable for Patients with CSM</th>
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<tbody>
<tr>
<td>5:30–5:38 pm</td>
<td><strong>PRO:</strong> Arthroplasty is Suitable</td>
</tr>
<tr>
<td></td>
<td>K. Daniel Riew</td>
</tr>
<tr>
<td>5:39–5:47 pm</td>
<td><strong>CON:</strong> Single Level CSM is Best Treated with ACDF</td>
</tr>
<tr>
<td></td>
<td>Robert F. Heary</td>
</tr>
<tr>
<td>5:48–5:53 pm</td>
<td><strong>Summary of Points</strong></td>
</tr>
<tr>
<td></td>
<td>Alpesh Patel</td>
</tr>
<tr>
<td>5:54–5:56 pm</td>
<td><strong>Questions from the Audience</strong></td>
</tr>
<tr>
<td>5:57–5:59 pm</td>
<td><strong>Audience Vote</strong></td>
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<tr>
<th>6:00–6:30 pm</th>
<th>Topic 4: Cervical Lami/Fusion – Ok to Stop at C7?</th>
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<tbody>
<tr>
<td>6:00–6:08 pm</td>
<td><strong>PRO:</strong> Sufficient to Stop at C7</td>
</tr>
<tr>
<td></td>
<td>Edward C. Benzel</td>
</tr>
<tr>
<td>6:09–6:17 pm</td>
<td><strong>CON:</strong> Should Fuse Across CT Junction</td>
</tr>
<tr>
<td></td>
<td>Jason Savage</td>
</tr>
<tr>
<td>6:18–6:23 pm</td>
<td><strong>Summary of Points</strong></td>
</tr>
<tr>
<td></td>
<td>Catherine Miller-Simington</td>
</tr>
<tr>
<td>6:24–6:26 pm</td>
<td><strong>Questions from the Audience</strong></td>
</tr>
<tr>
<td>6:27–6:30 pm</td>
<td><strong>Audience Vote and Session Conclusion</strong></td>
</tr>
</tbody>
</table>
**The Cahill Controversies**

**Moderators:** Mohamad Bydon, Domagoj Coric  
**Speakers:** Mark H. Bišky, Christopher M. Bonfield, Ziya L. Gokaslan, D. Kojo Hamilton, James S. Harrop, Kristen E. Jones, Adam S. Kanter, Gregory M. Mundis, Laurence D. Rhines, Gabriel C. Tender, Juan S. Uribe, Lynda Jun-San Yang

**Learning Objectives:** Upon completion of this session, participants will be able to:  
- Discuss the risks/benefits of options in lateral spine surgery  
- Recognize options in nerve transfer surgery for SCI  
- Analyze optimal treatment for primary tumor resection  

**10:15–10:44 am**  
**Topic 1:** Single Position Lateral Surgery

10:15–10:22 am  
**PRO:** It’s Beyond Efficient  
Juan S. Uribe

10:23–10:30 am  
**CON:** No Alignment Correction and Risk of Misplaced Hardware  
Gregory M. Mundis

10:31–10:36 am  
**Summary of Points**  
Adam S. Kanter

10:37–10:41 am  
**Questions from the Audience**

10:42–10:44 am  
**Audience Vote**

Continued to page 14
Special Course 6 $150

1:30–3:30 pm
NEW! Pediatric Spinal Pathology for the Adult Spine Surgeon

Course Directors: Christopher M. Bonfield, Vijay Ravindra

Speakers: Richard C. E. Anderson, David D. Gonda, Mari L. Groves, Andrew H. Jea, Christina M. Sayama, Andrew C. Vivas

Course Description: From trauma to deformity: what every spine surgeon should know about treating pediatric patients will be covered in this new course for DSPN 2021.

Learning Objectives: Upon completion of this course, participants will be able to:
- Recognize different surgical options for stabilizing the craniocervical junction
- Discuss diagnostic evaluation and treatment options for craniocervical instability
- Identify the basics of pediatric deformity and when to intervene surgically

1:30–1:34 pm
Introduction
Christopher M. Bonfield, Vijay Ravindra
Special Course 7  $150
1:30–4:30 pm
Treatment and Complication Avoidance in the Management of Spinal Tumors

Course Directors: John E. O’Toole, John H. Shin

Course Description: This course will review and highlight the multi-disciplinary management of spinal tumors for the practicing surgeon. Practical tips for managing common tumors and clinical scenarios with an emphasis on complications avoidance and surgical planning will be emphasized. Participants are encouraged to prepare and present cases for discussion.

Learning Objectives: Upon completion of this course, participants will be able to:
– Analyze various surgical treatment approaches to address spine tumor pathologies
– Identify applications of new technologies in spine tumor surgery
– Discuss complications avoidance strategies in tumor surgery

1:30–1:33 pm
Introduction
John E. O’Toole, John H. Shin

1:34–1:45 pm
Management of Vertebral Column Tumor Metastasis
Joseph H. Schwab

1:46–1:57 pm
Tips for Treating Epidural Cord Compression (When You’re Not at an AMC)
Nicolas Dea

1:58–2:09 pm
When Do Metastatic Spine Tumor Patients Require Stabilization
Hesham M. Soliman

2:10–2:21 pm
Integrating New Technologies in Surgery: LITT, Robotics, Carbon Fiber
Claudio E. Tatsui

2:22–2:33 pm
Complications and How I Deal With Them
C. Rory Goodwin

2:34–2:45 pm
Management of Primary Bone Tumors of the Mobile Spine
Dean Chou

2:46–2:57 pm
Surgical Considerations for Cervical Chordoma
Daniel M. Sciubba

2:58–3:09 pm
Quality of Life and Patient Satisfaction After En Bloc Resection
Matthew Goodwin

3:10–3:24 pm
Break

3:25–3:36 pm
High Sacral Tumors: Single versus Staged Approaches
Ziya L. Gokaslan

3:37–3:48 pm
Mid to Low Sacral Tumors: When is Reconstruction Needed
Ehud Mendel

3:49–4:00 pm
Management of Benign Bone Tumors in the Spine
Michael A. Galgano

4:01–4:12 pm
Technical Nuances of Intradural Cervical Tumor Surgery
Mark H. Bilsky

4:13–4:30 pm
Participant Case Discussions
Ilya Laufer

Special Course 8  $150
1:30–4:30 pm
Spine Summit Grand Rounds: Difficult Cases – The Decision-Making Dilemma

Course Directors: Ali A. Baaj, Langston T. Holly
Discussants: Victor W. Chang, Khoi D. Than
Speakers: Sigurd Berven, James S. Harrop, Gregory M. Mundis, Laurence D. Rhines

Course Description: Spine Summit Grand Rounds is a course with the focus on member participation. The course is intended for audience members to bring difficult cases they have managed or are currently managing, where they would like to seek an opinion from the panel of experts. Attendees who submit a case that is accepted for the course will receive complimentary registration to this course. Submitted cases are reviewed by the course directors who make the final selection.

Learning Objectives: Upon completion of this course, participants will be able to:
– Describe a variety of decision–making approaches in the complex case
– Demonstrate knowledge base in complication management in cervical and lumbar operations
– Discuss complication avoidance strategies for management of complex lumbar and cervical conditions

1:30–1:35 pm
Introduction
Ali A. Baaj, Langston T. Holly

1:36–1:56 pm
The Difficult Anterior Cervical Case
James S. Harrop

1:57–2:33 pm
The Difficult Anterior Lumbar Case
James S. Harrop

2:34–2:53 pm
The Difficult Thoracic Spine Case
James S. Harrop

2:54–3:13 pm
The Difficult Lumbosacral Case
James S. Harrop

3:14–3:33 pm
The Difficult Mobile Spine Case
James S. Harrop

3:34–3:56 pm
The Decision-Making Dilemma Case
James S. Harrop
1:57–2:17 pm
The Difficult Thoracic Case
Gregory M. Mundis

2:18–2:38 pm
The Difficult Lumbar Case
Sigurd Berven

2:39–2:59 pm
The Difficult Tumor Case
Laurence D. Rhines

3:00–4:19 pm
Submitted Cases Review and Discussion
Victor W. Chang, Khoi D. Than

4:20–4:30 pm
Questions and Conclusion

Special Course 9 $150

1:30–4:30 pm
NEW! Starting Your Career: Practical Tips for Success

Course Directors: Owoicho Adogwa, Daniel Refai

Course Description: This course addresses neurosurgery and neuroscience research across the continuum of scientific inquiry: clinical research, translational research, comparative effectiveness research, and bench/basic science research. In this comprehensive course, you will hear from scientific leaders in neurosurgery/neuroscience research, about surgeon- and institutional-level factors that enhance your success as an early career investigator. The course will be beneficial to neurosurgery residents and junior faculty interested in pursuing careers as surgeon-scientists/researcher.

Learning Objectives: Upon completion of this course, participants will be able to:
- Execute contract negotiation and your first job as a surgeon-researcher: key components that lead to increased likelihood of early career success
- Demonstrate knowledge of the different types of research methodologies and keys to success in each
- Identify the progression from hypothesis generation to a fundable project

1:30–1:39 pm
Introduction
Owoicho Adogwa, Daniel Refai

1:40–1:54 pm
Negotiating Your First Job: Components of Surgeon Scientist Contract
Daniel C. Lu

1:55–2:09 pm
Basic Science versus Translational Clinical versus Health Services/Population Science
David O. Okonkwo

2:10–2:24 pm
From Ideas to Fund-able Projects
Wilson Z. Ray

2:25–2:39 pm
Thinking Ahead – Structuring Your First 5 Years for Success
Daniel K. Resnick

2:40–2:54 pm
Publishing in a High Impact Journal
Edward C. Benzel

2:55–3:14 pm
Break

3:15–4:30 pm
Survival Guide for Your First Year in Practice: ABNS, Running Clinic, Scheduling Surgery, Life Balance
Moderator: Marjorie C. Wang
Discussants: Domagoj Coric, Walavan Sivakumar, Laura A. Snyder, Chester Yarbrough

Special Course 10 $150

1:30–4:30 pm
NEW! Practical Matters: What Every APP/Surgeon Team Needs to Know

Course Directors: Nicole M. LeFevre, Corinna C. Zygourakis
Faculty: Andrea Fox, Eric A. Potts, Nicholas Theodore, Anand Veeravagu

Course Description: This new course will teach the must-have knowledge and skills to ensure success in the operating room for every Advanced Practice Provider.

Learning Objectives: Upon completion of this course, participants will be able to:
- Identify basic anatomy and screw placement from the occiput to the ilium
- Discuss procedure-specific patient positioning
- Demonstrate operative techniques including: suturing, drilling, and placing screws

1:30–1:34 pm
Introduction
Nicole M. LeFevre, Corinna C. Zygourakis

1:35–1:49 pm
Spine Surgery Anatomy
Andrea Fox

1:50–2:04 pm
Basics of Screw Placement
Corinna C. Zygourakis
MEETING AGENDA

2:05–2:14 pm  
**Pearls of Patient Positioning**  
Anand Veeravagu

2:15–2:29 pm  
**Suturing Tips and Tricks**  
Nicole M. LeFevre

2:30–3:29 pm  
**Hands-on Rotations**  
Eric A. Potts, Nicholas Theodore, Anand Veeravagu

3:30–4:30 pm  
**Course Social Hour (Non-CME)**

**Young Neurosurgeons’ Reception and Dinner**  
5:30–7:30 pm  
All residents, fellows, and young neurosurgeons are invited to enjoy a delicious dinner with 2021 Spine Summit Honored Guests: Sigurd Berven, Nicholas Theodore, Gregory R. Trost, Eric L. Zager. RSVP is required. Please email meetings@cns.org to attend.

**Reception with WINS**  
6:00–7:00 pm  
Join your colleagues from WINS for an hour of networking.

SATURDAY | July 31, 2021

6:30 am–12:30 pm  
**Registration**

6:30–7:30 am  
**Complimentary Breakfast**

**Challenging Cases 3**  
7:00–7:30 am  
**Oral Board Style Challenging Cases: Peripheral Nerve**  
**Moderators:** Line G. Jacques, Robert J. Spinner

**Abstract Breakout Sessions**  
7:30–9:30 am  
**Learning Objectives:** Upon completion of this session, participants will be able to:  
- Analyze the findings of novel neurosurgical studies, critique the design and methodology of these studies  
- List important areas for further knowledge development and research  
- Discuss ongoing innovative clinical and basic science studies, and how they may impact current practice

**General Spine Surgery 1/Trauma/Spinal Cord Injury**  
**Moderators:** Anthony M. DiGiorgio, Eve C. Tsai

**General Spine Surgery 2/Tumor/Opioids**  
**Moderators:** Victor W. Chang, Alexandra Stratton

**General Spine Surgery 3/Peripheral Nerve/Basic Science**  
**Moderators:** Allan J. Belzberg, Kristen E. Jones

**Spinal Deformity**  
**Moderators:** Christoph P. Hofstetter, Lara W. Massie

**Scientific Session 5**  
9:30–11:15 am  
**Setting the Path: A View to the Future**

**Moderators:** Langston T. Holly, Wilson Z. Ray

**Speakers:** Charles L. Branch, Michael W. Groff, John J. Knightly, Tyler R. Koski, Camilo A. Molina, Daniel K. Resnick, Michael P. Sternmetz, Nicholas Theodore

9:30–9:43 am  
**Recognition of Kuntz Scholars and Introduction of J.A.N.E., Mayfield, and new this year NREF/HYM Branch Fund Award Winners**  
Wilson Z. Ray

9:44–10:04 am  
**J.A.N.E. and Mayfield Award Presentations**

10:05–10:07 am  
**Introduction to Future Directions in Spine Surgery**  
John J. Knightly

10:08–10:16 am  
**How to do Better the Next Time: Ahead of the Curve (COVID)**  
Daniel K. Resnick

10:17–10:25 am  
**Eye on the Ball: What Really Matters for ASD Patients (Coronal Alignment, Sag Alignment, Restoration of Balance/Gaze)**  
Tyler R. Koski
10:26–10:34 am
Virtual Reality and Augmented Reality in Spine: Where Are We Going
Camilo A. Molina

10:35–10:37 am
Recognition of Neurosurgery Meritorious Award
Michael P. Steinmetz

10:38–10:52 am
Neurosurgery Meritorious Award Presentation – Half a Decade of the Robot: Has it Changed Our Practice or Are We Waiting for Something
Nicholas Theodore

10:53–11:01 am
Developing Competencies in Novel Techniques: The Learning Curve
Charles L. Branch

11:02–11:10 am
Educating our Trainees: Anticipating the Changing Landscape (Competency Based, Specialty Tracts, Etc.)
Daniel K. Resnick

11:11–11:15 am
Discussion and Session Conclusion
Michael W. Groff

Special Session

11:15 am–12:10 pm
Business of Neurosurgery in Collaboration with CSNS

Moderators: Joseph S. Cheng, Jeremy T. Phelps
Speakers: Owoicho Adogwa, Kurt M. Eichholz, Luis M. Tumialán, Cheerag D. Upadhyaya

Learning Objectives: Upon completion of this session, participants will be able to:
- Identify the changes in coding and reimbursement that impacts a neurosurgery spine practice
- Identify documentation requirements to facilitate authorization of imaging and surgeries
- Discuss the variables used by hospital systems to identify the financial impact of a spinal neurosurgeon
- Demonstrate an understanding of the variables associated with contracts for a successful neurosurgery position

11:15–11:16 am
Introduction
Joseph S. Cheng, Jeremy T. Phelps

11:17–11:24 am
Coding Updates 2021 for Spine
Luis M. Tumialán

11:25–11:32 am
New E&M Coding: What Neurosurgeons Need to Know
Owoicho Adogwa

11:33–11:40 am
Navigating Pre-authorization
Jeremy T. Phelps

11:41–11:48 am
Neurosurgeons Worth to a Hospital: Contribution Margins
Joseph S. Cheng

11:49–11:56 am
Key Points in Neurosurgical Contracts
Cheerag D. Upadhyaya

11:57 am–12:04 pm
Pearls for a Successful ASC
Kurt M. Eichholz

12:05–12:10 pm
Panel Discussion and Session Conclusion

DSPN Business Meeting

12:10–12:30 pm
Chair's Report
Michael P. Steinmetz

12:10–12:12 pm
Treasurer's Report
Eric A. Potts

12:13–12:15 pm
Secretary's Report
Luis M. Tumialán

12:16–12:18 pm
Nominating Committee Report
Zoher Ghogawala

12:19–12:21 pm
CNS Board Report
Brian L. Hoh

12:22–12:24 pm
AANS Board Report
John A. Wilson

12:25–12:27 pm
Future Sites Committee Report
Christopher E. Wolfla

12:30 pm
Meeting Adjourns

*All speakers and topics are subject to change
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 Congress of Neurological Surgeons and the Section on Disorders of the Spine and Peripheral Nerves. The Congress of Neurological Surgeons is accredited by the ACCME to provide continuing medical education for physicians.

AMAA Credit Designation Statement
The CNS designates this live activity for a maximum of 28 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

CME Credit
*A maximum of 19.50 AMA PRA Category 1 Credits™ may be earned for Scientific Sessions only.

Additional CME Credits can be earned by attending the following:

Special Courses
Attendees will receive a maximum of 3.75 AMA PRA Category 1 Credits™ for an eligible half-day Wednesday Special Course. Attendees will earn an additional 2 AMA PRA Category 1 Credits™ for attending the Wednesday evening Dinner Seminar. Attendees will receive a maximum of 2.75 AMA PRA Category 1 Credits™ for an eligible Friday afternoon Special Course. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Nursing Credit
The American Board of Neuroscience Nursing (ABNN) accepts attendance at educational activities approved for CME credit for CNRN or SCRN recertification. The educational activity must be specific to neuroscience or stroke and a course agenda may be required for any sessions that do not explicitly indicate neuroscience content. One CME credit hour equals one(1) CE hour.

For more information regarding recertification requirements, please contact the ABNN directly at 847-375-4733. Check the following websites for additional requirements: CNRN and SCRN.

Physician’s Assistant Credit
The American Academy of Physicians Assistants (AAPA) and The National Commission on Certification of Physician Assistant (NCCA) accepts attendance at educational activities from an ACCME accredited provider. One CME credit hour equals one(1) AAPA Category 1 CME credit. Education credits can be submitted by logging into the online submission system for both organizations.

For more information regarding recertification requirements, please contact the organizations directly:

The National Commission on Certification of Physician Assistant- 678-417-8100 or nccpa.net. The American Academy of Physicians Assistants (AAPA) -703-836-2272 or cme@aapa.org.

Join us at Spine Summit 2021 to celebrate our Honored Guests and Meritorious Awardee!

**Neurosurgery Honored Guest**
Gregory R. Trost
University of Wisconsin

**Orthopedics Honored Guest**
Sigurd Berven
University of California, San Francisco

**Peripheral Nerve Honored Guest**
Eric L. Zager
University of Pennsylvania

**Neurosurgery Meritorious Awardee**
Nicholas Theodore
John Hopkins University
Who Should Attend
Educational sessions are geared toward neurosurgeons, orthopedic surgeons, spine care specialists, fellows, residents, physician assistants/physician extenders, and nurse clinicians and are applicable to the practice of spine and peripheral nerve surgery.

Meeting Purpose
The purpose of the 2021 Section on Disorders of the Spine & Peripheral Nerves Annual Meeting is to provide continuing medical education to neurosurgeons, orthopedic surgeons, spine care specialists, fellows, residents, physician extenders, and nurse clinicians involved in the practice of spine and peripheral nerve surgery. Education is provided in the form of didactic lectures, special courses demonstrating neurosurgical techniques, exhibits presenting the newest instruments and information, and oral presentations providing the latest information regarding clinical advances in neurological surgery.

Health/Safety
We are working closely with the Hilton San Diego Bayfront to provide a healthy, safe environment for attendees. We will comply with guidelines and social distancing requirements.

Airline Discounts
The Section on Disorders of the Spine & Peripheral Nerves is pleased to offer discounts with the below airlines. Discount codes can only be used when booking directly through the airline website.

<table>
<thead>
<tr>
<th>Discount Codes</th>
<th>American Airlines</th>
<th>Delta</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dates:</strong></td>
<td>July 25–August 3</td>
<td>July 23–August 5, 2021</td>
</tr>
<tr>
<td><strong>Code:</strong></td>
<td>1971EJ</td>
<td>NMUMJ</td>
</tr>
</tbody>
</table>

| United Airlines | **Dates:** July 25–August 3, 2021 | **Code:** ZJU4675187 |

Area Attractions
The Hilton San Diego Bayfront is conveniently located across from the bustling Gaslamp Quarter. A lively downtown neighborhood known for its nightlife, enjoy a variety of clubs, dive bars, and cocktail lounges, or take in a show at the local theatre. There is also a mix of chain and independent restaurants, with many global options. Enjoy stunning bay and city views, relaxing leisure facilities, and unique dining venues.

San Diego is home to a wealth of family-friendly attractions, including Sea World, the San Diego Zoo, and the Birch Aquarium. Take a trip on the San Diego Trolley to Little Italy, Old Town, Fashion Valley, and even the US/Mexico Border. If you would rather stay close, ride the ferry over to Coronado Island, take in a Padres game at Petco Park, or take a walk through seaport village, which has more than 50 diverse shops and 17 eateries.

The Hilton San Diego Bayfront hotel concierge can also provide information on local tours, museums, and restaurants. This hotel does not offer childcare services, however, you may contact the concierge for childcare options. Call 619-564-3333 to be connected to the concierge.

Evaluations
The evaluation process is a key component in providing cutting-edge programming at the Section on Disorders of the Spine and Peripheral Nerves Annual Meeting. Your feedback on the quality and diversity of the program helps to determine future Annual Meeting programming. Your voice is important and your opinions are valued!

No-Smoking Policy
Smoking is not permitted at any official Section on Disorders of the Spine and Peripheral Nerve Annual Meeting event. Smoking is allowed at the Hilton San Diego Bayfront in designated areas only.

Speaker Ready Room
The Speaker Ready Room will be available Wednesday, July 28, through Saturday, July 31, 2021. All speakers and abstract presenters should visit the Speaker Ready Room at least one hour prior to their presentations.
Hotel Accommodations
The Hilton San Diego Bayfront offers newly renovated luxury accommodations and amenities your whole family is sure to enjoy, from fine dining to a host of recreational activities. Smoking is allowed in designated outdoor areas only.

Resort Amenities
• Luxurious on-site spa
• Bayfront Swimming Pool
• Pedestrian Skybridge to the Gaslamp Quarter

Hotel Room Rates*
<table>
<thead>
<tr>
<th>Room Type</th>
<th>Single</th>
<th>Double</th>
<th>Triple</th>
<th>Quad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Room</td>
<td>$291.98</td>
<td>$291.98</td>
<td>$314.48</td>
<td>$336.98</td>
</tr>
</tbody>
</table>

* Above rates include applicable state and local taxes. A portion of the room rate will be utilized to cover the cost of registration and housing services. Additional guests: $20 additional per guest 18 years and older over two guests in the room up to the maximum occupancy for the room type booked.

These special rates are only available until the July 2, 2021 cut-off date. The Section on Disorders of the Spine and Peripheral Nerves cannot guarantee the availability of this rate after the cut-off date. Rates are based on availability three days prior to and three days after the official meeting dates of July 28-31, 2021. Confirmation for dates other than official meeting dates, made prior to the cut-off date, will be based on availability.

Hotel Reservation Information and Deadlines
Hotel reservations are only available to registered Section on Disorders of the Spine and Peripheral Nerves attendees. You must first register for the Spine Summit before making your hotel arrangements. Rooms are subject to availability. Reserve your room by July 2, 2021. Visit spinesection.org to register and make your reservation today!

Deposit
A deposit equal to one night’s room and tax is required to hold each guest’s reservation. This payment must be submitted with your registration fees. Credit cards will be charged in mid-June. Please make checks payable to the DSPN Housing Center and mail checks to: DSPN Registration and Housing Center, 6100 W. Plano Parkway, Suite 3500, Plano, TX 75093. All rooms are subject to applicable state and local taxes. Hotel reservations requested without deposit will not be accepted.

Hotel Confirmations, Cancellations, or Changes

Through July 2, 2021
• All changes and cancellations must be made through the Section on Disorders of the Spine and Peripheral Nerves Registration and Housing Center.
• Rooms are not transferable.
• Refunds for deposits will be issued by the Section on Disorders of the Spine and Peripheral Nerves Registration and Housing Center if registration is cancelled.

Beginning July 3, 2021
• All changes and cancellations must be made directly with the hotel.
• If cancellation notice is not received according to the hotel policy, the deposit may be forfeited.
• Check your hotel confirmation and contact the hotel directly for information.

Support the Section on Disorders of the Spine and Peripheral Nerves by booking your hotel room for the Annual Meeting through the DSPN Housing Center. In order to obtain the necessary meeting and exhibit space at the hotel, the Section on Disorders of the Spine and Peripheral Nerves must commit to a minimum number of guest rooms. If that commitment is not fulfilled, the Section will incur significant financial penalties and have difficulty obtaining sufficient meeting space in the future. Unfortunately, this can have a major impact on the member services and programs that the Section is able to offer in the future. We appreciate your commitment to the Section by staying at the Hilton San Diego Bayfront.

Transportation to the Hotel
The Hilton San Diego Bayfront is conveniently located just three miles, approximately 10 minutes, from San Diego International Airport.

• $15 - $20 average costs for Uber or Lyft
• $18 approximate taxi fare each way

Register today at spinesection.org
Credit Card Payments
• US dollars and drawn on a US bank
• Visa/MasterCard/American Express

Included in Registration
Medical registration includes:
• Complimentary Breakfast
• Beverage Breaks
• Scientific Sessions
• Entrance to the Exhibit Hall
• One ticket to Wednesday Opening Reception
• Thursday and Friday Lunch with Exhibitors

Spouse/guest registration includes:
• Complimentary Breakfast
• Scientific Sessions
• Entrance to the Exhibit Hall
• Wednesday Opening Reception

Child Registration
Although there is no registration fee, children under 18 years of age should register for the 2021 Spine Summit to receive a badge, which includes access to:
• Wednesday Opening Reception
• Daily Continental Breakfast

Special Note: Children under the age of 18 are not allowed on the exhibit hall floor.

Speaker Registration
Complimentary registration will not be provided for one-day speakers. All speakers must register at the applicable registration rate.

Special Discount for Spine Section Members
The Section will waive your 2020 membership dues if you register and attend this year’s Annual Meeting at the member rate. If you have already paid your 2020 membership dues, you will receive an additional $100 off your already discounted member registration fee or a $100 credit.

Onsite Registration Hours
Wednesday, July 28
11:00 am–5:30 pm
Thursday, July 29
6:30 am–6:30 pm

Friday, July 30
6:30 am–4:30 pm
Saturday, July 31
6:30 am–12:30 pm

Registration Cancellation/Refund Policy
All refund requests must be received in writing by July 12, 2021. Requests accepted via:
E-mail: dspn@mcievents.com
Fax: (972) 349-7715

Before July 12, 2021
Registration: Full Refund less $100 processing fee. Special Courses, Symposia and Events will be refunded in full until this date.
After July 12 and No Shows
Absolutely no refunds will be issued after this date for Registration, Special Courses, Dinner Seminar, and Events regardless of cause.

Americans with Disabilities Act/Special Needs and Requests
The Section on Disorders of the Spine and Peripheral Nerves wishes to take the necessary steps to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently than other individuals because of the absence of auxiliary aids and services. Please let us know if, under the ADA, you require special accommodations or services in order to attend the Section on Disorders of the Spine and Peripheral Nerves Annual Meeting.

Your requirements should be sent directly to the DSPN Housing and Registration Center by emailing dspn@mcievents.com or calling 800-931-5539. Please provide any requests at least 30 days prior to the Spine Summit to guarantee accommodation. Scooter/wheelchair rentals are available by contacting ScootAround at 888-441-7575 or www.scootaround.com.

Meeting Registration Fees

<table>
<thead>
<tr>
<th>Registration Category</th>
<th>Received on or Before July 2, 2021</th>
<th>Received After July 2, 2021</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spine Section Member</td>
<td>$600</td>
<td>$800</td>
</tr>
<tr>
<td>Orthopedic Surgeon/ACOS*</td>
<td>$600</td>
<td>$800</td>
</tr>
<tr>
<td>NASS / SRS / SMISS / ISASS Members</td>
<td>$600</td>
<td>$800</td>
</tr>
<tr>
<td>AO Spine / CSRS / ACSR Members</td>
<td>$600</td>
<td>$800</td>
</tr>
<tr>
<td>Non-member / Non-physician, Non-member</td>
<td>$750</td>
<td>$950</td>
</tr>
<tr>
<td>Resident / Medical Student</td>
<td>$50</td>
<td>$100</td>
</tr>
<tr>
<td>Resident Non-Member</td>
<td>$75</td>
<td>$125</td>
</tr>
<tr>
<td>Nurse/Physician Assistant</td>
<td>$250</td>
<td>$400</td>
</tr>
<tr>
<td>Spouse/Guest</td>
<td>$100</td>
<td>$130</td>
</tr>
<tr>
<td>Child</td>
<td>$0</td>
<td>$0</td>
</tr>
</tbody>
</table>

*Orthopedic Surgeon/ACOS Member Registration includes one-year complimentary adjunct membership.
Find the latest spine and peripheral nerve technology in the Exhibit Hall. Take time to explore the hall and enjoy one-on-one discussions and demonstrations with our exhibitors. Learn about the devices and new technologies that can advance your practice.

Exhibit Hall Features

• Discover state-of-the-art equipment, products, and services.
• Enjoy complimentary lunch in the exhibit hall or a corporate-sponsored lunch. Corporate partners present the latest cutting-edge technology while providing lunch.
• Participate in What’s New sessions. Join your peers during daily beverage breaks on Thursday and Friday, as speakers share the latest in cutting-edge research and technology.

Exhibit Hours

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday, July 29</td>
<td>9:00 am–4:30 pm</td>
</tr>
<tr>
<td>Friday, July 30</td>
<td>9:00 am–1:15 pm</td>
</tr>
</tbody>
</table>

What’s New Sessions and Beverage Break Schedule

<table>
<thead>
<tr>
<th>Morning</th>
<th>Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thursday, July 29</td>
<td>9:30–10:15 am</td>
</tr>
<tr>
<td>Friday, July 30</td>
<td>9:30–10:15 am</td>
</tr>
</tbody>
</table>

Corporate-sponsored Lunch Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Wednesday, July 28</td>
<td>12:00–1:00 pm</td>
</tr>
<tr>
<td>Thursday, July 29</td>
<td>12:00–1:00 pm</td>
</tr>
<tr>
<td>Friday, July 30</td>
<td>12:15–1:15 pm</td>
</tr>
</tbody>
</table>

2020 EXHIBITORS

4WEB Medical
7D Surgical
Aesculap
American Spine Registry
Amplify Surgical
ATEC Spine
Augmedics
Benvue Medical
Biedermann Motech
Biologica Technologies
Bioventus
Camber Spine
Carbofix in Orthopedics
Cerapedics, Inc.
ControlRad Inc.
DePuy Synthes
DJO Global
Gauthier Biomedical
Globus Medical
Integrity Implants
Intrinsic Therapeutics
Joimax
Kuros Biosciences
Life Instrument Corporation
Medical Education & Research Institute (MERI)
Medtronic
North American Spine Society
NuVasive
Olympus America
Orthofix
RIWO Spine - a Richard Wolf Co.
RTI Surgical
SeaSpine
SI-BONE
Simplify Medical
Spinal Elements
SpineCraft
Spine Wave
Stryker
SurGenTec
Surgeons Capital Management
Synaptive Medical
TeDan Surgical Innovations
Tobra Medical
TrackX Technology
Zimmer Biomet
JOIN US!

Hilton San Diego Bayfront
San Diego, California

July 28–31, 2021

Advance Registration Deadline:
Friday, July 2, 2021

Register Today at
spinesection.org