MUSCULOSKELETAL IMAGING COURSE

45th Annual Meeting

September 26-28, 2018

COURSE HIGHLIGHTS

► Case-Based Interactive Audience Response Sessions
► 4 Self-Assessment Module Offerings
► Recommendations for MSK Dilemmas
► Hot Topics in Musculoskeletal Imaging
► Orthopedic Pathology Course
► Musculoskeletal Ultrasound Course
The International Skeletal Society (ISS) invites you to its 45th annual refresher course in Musculoskeletal Radiology. The program is exceptional on numerous counts. All aspects of MSK radiology are covered over three days. The speakers are international experts who have literally written the books on MSK MRI, CT, ultrasound and radiography.

Parallel tracks give participants the option of attending lectures focusing on either sports medicine or other MSK disorders such as neoplasm, infection, arthritis and metabolic disease. In the sports track, lectures emphasize the current thinking about anatomy, physiology and traumatic mechanisms of injury. The program is designed for depth of knowledge. In the MSK disorders track, speakers will address hot topics including bone marrow, peripheral nerves, orthopedic hardware and cartilage. Interventional topics encompass injections, percutaneous treatments and biopsy techniques comparing ultrasound, CT and fluoroscopic guidance.

Here are some highlights:

- Opening session on bone marrow imaging with histopathological correlation
- MSK imaging dilemmas with evidence-based recommendations
- ISS meets DGMSR: imaging of the shoulder
- Self-assessment modules (SAM)
- Interactive audience response sessions (ARS)
- Sports-specific injuries involving joints and muscles
- Rapid-fire presentations on bone and soft tissue tumors
- Traditional film quiz panel

Several optional courses are available. The one-day MSK ultrasound course takes place on Tuesday. Space is limited for the small group tutorials in which participants can scan models under the supervision of experienced tutors. The one-day radiology-pathology correlation course happens on Sunday. Participants in this pathology course are welcome to join ISS members for case presentations during the Members Meeting on Monday and Tuesday.

In 2018, the ISS refresher course will take place in Berlin at the InterContinental Hotel. The InterCon is recently updated and well located in the Tiergarten district of Berlin, minutes from the Zoo, KaDeWe and Bikini Berlin. Berlin is Germany’s largest city and its capital since the reunification of East and West Germany in 1990. Most importantly, Berlin is an extraordinarily vibrant, profoundly historical and cutting-edge cultural city.

We hope you will join us in Berlin.

William Palmer  
ISS President

Laura Bancroft  
Chair, Program Committee

Andreas Heuck  
Chair, Local Organizing Committee

Berlin, the German capital, is renowned for its exceptional variety of attractions, its flourishing cultural scene and a way of life that’s both fast-paced and relaxed. Contrasts between historical buildings and modern architecture, between the traditional and the modern are what set the city apart from the rest. The sights of Berlin – from the Brandenburg Gate to the Federal Chancellery – tell the story of an entire nation.
MUSCULOSKELETAL IMAGING COURSE FACULTY

Hassan Douis MD, MRCP, FRCR
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Neil Egund, MD, DMSc
Rainer Erlemann, MD
Julie Fanburg-Smith, MD
Laura Fayad, MD
David Fessel, MD
Bruce Forster, MD, MSc, FRCPc
Anastasia Fotiadou, MD, PhD
Karl-Friedrich Kreitner, MD
Jan Fritz, MD
Howard Galloway, FRANZCR
Christian Glaser, MD
Gary Gold, MD
Andrew Grainger, BM, BS, MRCP, FRCR
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Andreas Heuck, MD
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Benjamin Howe, MD
Tudor Hughes, FRCR
Hakan Ilaslan, MD
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Suphaneewan Jaovisidha, MD
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Richard Kijowski, MD
Hee Kyung Kim, MD
Andrea Klauser, MD
Mark J. Kransdorf, MD
Josef Kramer, MD
Andreas Heuck, MD
Mary Hochman, MD
Benjamin Howe, MD
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Anne Jurik, DMSc
Richard Kijowski, MD
Hee Kyung Kim, MD
Andrea Klauser, MD
Mark J. Kransdorf, MD
Radhesh Lalam, MBBS, MRCS, FRCR
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Mark Murphy, MD
Iris-Melanie Noebauer-Huhmann, MD
Philip O’Connor, MD
Paul O’Donnell, MBBS, FRCP, FRCR
Patrick Omoumi, MD, PhD
Simon Ostiere, FRCR
Hugue Ouellette, MD
William Palmer, MD
Mini N. Pathria, MD
Wilfred Peh, MD
Lionel Pesquer, MD
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David Petrover, MD
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Michael Richardson, MD
Philip Robinson, FRCR
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Maryam Shahabpour, MD
Stacy Smith, MD
Carolyn Sofka, MD
Andrew Sonin, MD, FACR
Lynne Steinbach, MD
Kathryn Stevens, MD, BS (hons)
Naveen Subhas, MD
Reto Sutter, MD
Mihira Taljanovic, MD, PhD
Atul Tanasa, MD, PhD
James Teh, MBBS, MRCP, FRCR
Michael Tuite, MD
Prudence Tyrrell, MD
Hilary Uman, MD
Marnix Van Holsbeeck, MD
Bruno Vande Berg, MD, PhD
Daniel Vanel, MD
Filip Vanhoenacker, MD, PhD
Violeta Vasilevska Nikodimova MD, PhD, MSc
Koenraad Verstraete, MD
Hillary W. Garner, MD
Simone Waldt, MD
Daniel M. Walz, MD
Marc-André Weber, MD, MSc
Lawrence White, MD
David Wilson, FRCP, FRCR
Carl Winalski, MD
Jim Wu, MD
Hiroshi Yoshioka, MD, PhD
Marco Zanetti, MD
Michael Zlatkin, MD

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Philip Robinson, FRCP

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CONVENTION PLANNING CHAIR
Lawrence White, MD

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William Palmer, MD
Mini Pathria, MD
Michael Recht, MD
Philip Robinson, FRCR
Frank Roemer, MD
Andrea Rosskopf, MD
David Rubin, MD

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PRESIDENT-ELECT
Lawrence White, MD

SECRETARY
Juerg Hodler, MD, MBA

TREASURER
Michael Recht, MD

TREASURER-ELECT
Michael Tuite, MD

IMMEDIATE PAST PRESIDENT
Lynne Steinbach, MD
OVERALL MEETING DESIGN
During this six-day meeting, all attendees are welcome to register for the three-day refresher course, our main educational activity. All attendees can also register for our one-day Pathology Orthopedic Course and Hands-On Ultrasound Course. The Members Meeting, our two-day scientific program, is open to ISS members. The multiple sessions are designed to meet the needs of the multi-disciplinary physicians attending the course. The course focus is targeted towards, pathologists, radiologists, researchers, sonographers, allied health providers and other professionals interested in musculoskeletal imaging.

The primary goal of the refresher course is to provide a rich educational experience for attendees. The wide variety of educational sessions allows participants to remedy educational gaps, regardless of experience or scope of practice. Attendees of the course can expect to gain in depth knowledge of common clinical entities and exposure to uncommon disorders, while also learning of the latest innovations in advanced imaging and therapeutic interventions.

EDUCATIONAL OBJECTIVES
At the conclusion of the ISS 45th Annual Meeting and Musculoskeletal Imaging Course, attendees should be able to:

1. Explain the pathophysiology and imaging findings of commonly encountered musculoskeletal disorders and sports related injuries.
2. Identify appropriate utilization of radiographs, CT, MRI and ultrasound for evaluating musculoskeletal disorders.

ULTRASOUND AND GUIDED INTERVENTION: MUSCLE, NERVE AND FAT
The need for the hands-on ultrasound workshop and lectures has been established from discussions with the ISS program committee, the feedback from past ISS program committee, the feedback from past ISS program committee and past ISS hands-on workshops, and faculty participation in other similar hands-on ultrasound workshops across the world. The topic chosen for this year’s course is ultrasound of Muscle, Nerve and Fat. In addition to didactic lectures, the attendees will participate in hands-on scanning tutorials, allowing the delegates to work in small groups with experts to practice their scanning of muscles, nerves, and fat.

ACCREDITATION
Please visit the website for CME and Sonographer accreditation updates: www.internatonalskeletalsociety.com

EDUCATIONAL NEEDS
Musculoskeletal imaging involves a broad spectrum of pathology including sports related injuries, trauma, arthritis, infection, osseous and soft tissue tumors, and metabolic bone disease. The diagnosis and management of musculoskeletal disorders increasingly relies upon advanced imaging. Further, image guided biopsy and therapeutic interventions play an important role in the management of musculoskeletal disorders. Given these demands, musculoskeletal imagers require ongoing education to maintain an extensive knowledge base, be skilled in state-of-the-art imaging techniques, and understand the latest advances in clinical management.

The refresher course is structured to fully address the educational needs of musculoskeletal imagers. Two parallel tracks in sports medicine imaging and musculoskeletal imaging provide attendees a wide selection of activities to fulfill their individual educational needs. Educational sessions within each track concentrate on specific pathology and anatomic regions. Conventional didactic lectures are supplemented by highly focused "rapid fire" sessions to maximize the educational yield for participants. To facilitate integration of educational material into clinical practice, attendees are encouraged to participate in case interpretation sessions. Interactive events include a film interpretation panel and an innovative “at the PACS” session combining real-time interpretation with didactic materials.

The sports medicine imaging track includes topics reviewing anatomy and pathology of the shoulder, elbow, wrist, hip, knee, ankle and foot. Rapid fire sessions focus on sites of complex anatomy and specific injuries. Special sessions addressing tendon, cartilage, bone and muscle emphasize the evaluation of musculoskeletal structural substrates, affording an in depth exploration of biomechanics, pathophysiology, and advanced imaging. Attendees are assured of an expansive educational experience with offerings that include tendon histopathology, advanced cartilage imaging, pediatric sports injuries, postoperative imaging, and numerous specific sports related injuries.

The musculoskeletal disease track covers a broader array of pathology, acting as both a comprehensive review and update on recent advances. Common musculoskeletal findings are discussed in an introductory “differential and diagnosis” session, with subsequent sessions on trauma, bone and soft tissue tumors, metabolic bone disease and arthritis. Additional sessions address disorders of the spine and peripheral nerves, imaging of orthopedic hardware, and musculoskeletal therapeutic interventions. Advanced imaging techniques are discussed using the popular rapid fire format, including whole body MRI, dual energy CT and metal artifact reduction methods.
### MUSCULOSKELETAL IMAGING COURSE

#### 7:00 - 8:00
**BREAKFAST**

#### 7:00 - 16:00
**REGISTRATION/INFORMATION DESK HOURS**

#### 7:00 - 17:00
**EXHIBIT HALL HOURS**

#### DAY 1
**WEDNESDAY, SEPTEMBER 26, 2018**

### COMBINED SESSION

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tr>
<td>8:00 - 8:10</td>
<td><strong>INTRODUCTION</strong> Laura Bancroft, MD, FCR</td>
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<tr>
<td>8:10 - 10:00</td>
<td><strong>Opening Session:</strong> Bone Marrow Moderators: Lawrence White, MD, Michael Tuite, MD</td>
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<tr>
<td>8:10 - 8:35</td>
<td>Bone Marrow Changes Related to Injury: Anatomy, Pathophysiology, and Terminology Donald Resnick, MD</td>
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<td>8:35 - 8:55</td>
<td>Bone Marrow Histopathology, for Correlation with Radiology burg-Smith, MD</td>
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<tr>
<td>10:00 - 10:30</td>
<td><strong>Hot Topics</strong> Moderators: Michael Recht, MD, Patrick Omoumi, MD, PhD</td>
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<td>10:30 – 10:45</td>
<td>AI and MSK Radiology: What is its Role? Michael Recht, MD</td>
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<td>11:00 – 11:15</td>
<td>MSK MR Imaging: Have We Gone Overboard with Resolution and Image Quality at the Expense of Cost and Speed? Naveen Subhas, MD</td>
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<td>11:15 – 11:30</td>
<td>3D Printing and vr/ar: Do They Have a Role in MSK Imaging? Benjamin Howe, MD</td>
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<td>11:30 – 11:45</td>
<td>Resurgence of MSK CT Kambiz Motamedi, MD</td>
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<tr>
<td>11:45 – 12:00</td>
<td>Will Metal Artifact Reduction, Low Dose and Dual Energy Lead to a Resurgence of MSK CT Imaging? Hugue Ouellette, MD</td>
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<tr>
<td>12:00 - 13:30</td>
<td><strong>LUNCH</strong></td>
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<tr>
<td>13:30 – 13:50</td>
<td>Mechanics and Injury of the Throwers Elbow Mark Anderson, MD</td>
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<td>13:50 – 14:10</td>
<td>Biceps and Triceps, Anatomy and Pathology, Does Knowing the Anatomy Matter? David Fessel, MD</td>
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<td>14:10 – 14:30</td>
<td>Elbow Ligament Anatomy, Injury Patterns and Lesion Visualization Lynne Steinbach, MD</td>
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<td>14:30 – 14:45</td>
<td>Epicondylitis, Imaging Guided Diagnosis and Treatment Philip O’Connor, MD</td>
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<td>14:45 – 15:00</td>
<td>Sports Injury of the Pediatric Elbow Kathryn Stevens, MD, BS (hons)</td>
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<td>15:00 – 15:30</td>
<td><strong>BREAK</strong></td>
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<td>15:30 – 17:00</td>
<td>Wrist &amp; Hand Sports Injuries: State of the Art Imaging Moderators: Hiroshi Yoshioka, MD, MD, PhD</td>
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<td>15:30 – 15:45</td>
<td>MRI: State of the Art Diagnosis of Sports Injuries Michael Tuite, MD</td>
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<td>15:45 – 16:00</td>
<td>Ultrasound in Hand and Wrist Sports Diagnosis: Advantages, Limitations and Intervention James Teh, MBBS, MRCP, FRCR</td>
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<td>16:00 – 16:15</td>
<td>Post-op Hand and Wrist MRI in Sports Robert Campbell, MD</td>
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<td>16:15 – 16:30</td>
<td>Sports Specific: Wrist Golf Injuries Bruce Forster, MD, MD, FRCPC</td>
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<td>16:30 – 16:45</td>
<td>Sports Specific: Hand and Wrist Climbing Injuries Andrea Rosskopf, MD</td>
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<tr>
<td>16:45 – 17:00</td>
<td>Sports Specific: Hand and Wrist Tennis Injuries Jenny Bencardino, MD</td>
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### SPORTS MEDICINE IMAGING

#### 10:00 - 10:30
**BREAK**

#### 10:30 - 12:00
**Hot Topics** Moderators: Michael Recht, MD, Patrick Omoumi, MD, PhD

#### 10:30 - 10:45
AI and MSK Radiology: What is its Role? Michael Recht, MD

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#### 11:45 - 12:00
Will Metal Artifact Reduction, Low Dose and Dual Energy Lead to a Resurgence of MSK CT Imaging? Hugue Ouellette, MD

#### 12:00 - 13:30
**LUNCH**

#### 13:30 - 13:50
Imaging Sports Injury of the Elbow Moderators: Victor Cassar-Pullicino, MD, Simon Ostlere, FCR

#### 13:30 - 13:50
Mechanics and Injury of the Throwers Elbow Mark Anderson, MD

#### 13:50 - 14:10
Biceps and Triceps, Anatomy and Pathology, Does Knowing the Anatomy Matter? David Fessel, MD

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Epicondylitis, Imaging Guided Diagnosis and Treatment Philip O’Connor, MD

#### 14:45 - 15:00
Sports Injury of the Pediatric Elbow Kathryn Stevens, MD, BS (hons)

#### 15:00 - 15:30
**BREAK**

#### 15:30 - 17:00
Wrist & Hand Sports Injuries: State of the Art Imaging Moderators: Hiroshi Yoshioka, MD, MD, PhD, Jean-Denis Laredo, MD

#### 15:30 - 15:45
MRI: State of the Art Diagnosis of Sports Injuries Michael Tuite, MD

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Ultrasound in Hand and Wrist Sports Diagnosis: Advantages, Limitations and Intervention James Teh, MBBS, MRCP, FRCR

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Sports Specific: Hand and Wrist Climbing Injuries Andrea Rosskopf, MD

#### 16:45 - 17:00
Sports Specific: Hand and Wrist Tennis Injuries Jenny Bencardino, MD

### MUSCULOSKELETAL DISEASE

#### 10:00 - 10:30
**BREAK**

#### 10:30 - 12:00
**MSK Intervention** Moderators: Nicolas Amoretti, MD, Antonio Banfill, MD

#### 10:30 - 10:45
PRP: What is it Good For? Jon Jacobson, MD

#### 10:45 - 11:00
Stem Cells: Ready for Prime Time? Stacy Smith, MD

#### 11:00 - 11:15
Can We Treat the Joint? Marnix Van Holsbeeck, MD

#### 11:15 - 11:25
US Guided Percutaneous Treatment for Trigger Finger and Carpal Tunnel Syndrome David Petrover, MD

#### 11:25 - 11:35
Joint and Soft Tissue Injections: US vs Fluoroscopic Guidance Georgina Allen, FRCR, FMS, SEM

#### 11:35 - 11:45
Spine Procedures: CT vs. Fluoro Luca Sconfiendo, MD, PhD

#### 11:45 - 12:00
Palliative Cementoplasty Peter Munk, MDCM, FRCPC, FSIR

#### 12:00 - 13:30
**LUNCH**

#### 13:30 - 15:00
**MSK Imaging Dilemmas: Evidence-Based Recommendations** Moderators: Laura Bancroft, MD, FCR, Klaus Bohndorf, MD

#### 13:30 - 13:45
MSK Interventions for Tissue Healing: What Should We Be Injecting and When? Kenneth Lee, MD

#### 13:45 - 14:00
Subspecialty MSK Teleradiology: Who Does it Help and Hurt? Andrew Sonin, MD, FCR

#### 14:00 - 14:15
Early Rheumatoid Arthritis: When to Use MR or US Andrea Klauser, MD

#### 14:15 - 14:30
Screening for Osteoporosis: Who to Examine and How? Wilfred Peh, MD

#### 14:30 - 14:45
Follow-up After Treatment of Soft Tissue Sarcomas: How and How Often? Marc-André Weber, MD, MSc

#### 14:45 - 15:00
Suspected Diabetic Foot Infections: What Imaging Affects Management? Mark Schweitzer, MD

#### 15:00 - 15:30
**BREAK**

#### 15:30 - 17:00
**Metabolic and Systemic – (SAM)** Moderators: Anastasia Fotiadou, MD, PhD, Alberto Bazzocchi, MD, PhD

#### 15:30 - 15:45
Osteoporosis: Pearls and Pitfalls Giuseppe Guglielmi, MD

#### 15:45 - 16:00
Sarcopenia: Past, Present, and Future Robert Boutin, MD

#### 16:00 - 16:15
Adiposity: Musculoskeletal Implications Miriam Bredella, MD

#### 16:15 - 16:30
Renal Disease of Bone Leon Lenchik, MD

#### 16:30 - 16:45
Drug Induced Musculoskeletal Disorders Michael Richardson, MD

#### 16:45 - 17:00
Atypical Infections Johnny Monu, MB, BS, MS

### REGISTRATION/INFORMATION DESK HOURS

#### 7:00 - 16:00
**EXHIBIT HALL HOURS**

#### 7:00 - 16:00
**BREAKFAST**

#### 7:00 - 17:00
**REGISTRATION/INFORMATION DESK HOURS**

### Welcome Reception

**18:30 – 20:30**

**JOIN US**
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<td>Shoulder: ISS Meets DGMSR</td>
<td>Andreas Heuck, MD, Klaus Bohndorf, MD</td>
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<tr>
<td>8:00 – 8:15</td>
<td>Rotator Cuff: Current Concepts in Anatomy and Classification</td>
<td>Simone Waldt, MD</td>
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<td>8:15 – 8:30</td>
<td>Biceps Pulley and Rotator Interval</td>
<td>Rainer Schmitt, MD, PhD</td>
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<td>8:30 – 8:45</td>
<td>External and Internal Impingement Syndromes</td>
<td>Andreas Heuck, MD</td>
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<td>8:45 – 9:00</td>
<td>Shoulder Instability</td>
<td>Karl-Friedrich Kreitner, MD</td>
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<td>9:00 – 9:15</td>
<td>Calcific Tendinitis</td>
<td>Christian Glaser, MD</td>
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<td>9:15 – 9:30</td>
<td>Pectoralis, Latissiusmus and Teres Major</td>
<td>Marco Zanetti, MD</td>
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<tr>
<td>9:30 – 9:45</td>
<td>Sick Scapula Syndrome, Scapular Impingement and Periscapular Bursitis</td>
<td>Christoph Schaefeller, MD</td>
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<td>9:45 – 10:00</td>
<td>Post-Operative Shoulder</td>
<td>Reto Sutter, MD</td>
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<td>10:00 – 10:30</td>
<td>BREAK</td>
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<tr>
<td>10:30 – 12:00</td>
<td>Trauma/ Stress Injuries (ARS)</td>
<td>Howard Galloway, FRANZCR, Michael Zlatkin, MD</td>
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<tr>
<td>10:30 – 10:45</td>
<td>Upper Extremity Stress Injuries</td>
<td>Lionel Pesquer, MD</td>
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<td>10:45 – 11:00</td>
<td>Axial Skeleton Stress Injuries</td>
<td>Radhesh Lalam, MBBS, MRCS, FRCR</td>
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<td>11:00 – 11:15</td>
<td>Sacral Stress Fractures</td>
<td>Mary Hochman, MD</td>
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<td>11:15 – 11:30</td>
<td>Hip and Knee Stress Injuries How Did I Break My Hip Running?</td>
<td>Mini N. Pathria, MD</td>
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<td>11:30 – 11:45</td>
<td>Tribia Stress Injuries in Athletes and Military Recruits</td>
<td>Nogah Shabshin, MD, MBA, BSc</td>
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<tr>
<td>11:45 – 12:00</td>
<td>Ankle and Foot How Did I Break My Foot Sightseeing in Berlin?</td>
<td>Daniel M. Wolz, MD</td>
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<td>12:00 – 13:00</td>
<td>LUNCH</td>
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<tr>
<td>13:30 – 15:00</td>
<td>Muscle Injury, Edema and Beyond</td>
<td>Atul Taneja, MD, PhD, Mini N. Pathria, MD</td>
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<td>13:30 – 13:45</td>
<td>Patterns of Muscle Abnormalities on MR Imaging</td>
<td>Robert Boutin, MD</td>
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<td>13:45 – 14:00</td>
<td>Imaging of Muscle Trauma: Role of MR and US</td>
<td>Michel Crema, MD</td>
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<td>14:00 – 14:15</td>
<td>Muscle Injuries of the Hip and Thigh</td>
<td>Marc-André Weber, MD, MSc</td>
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<td>14:15 – 14:30</td>
<td>Grading of Muscle Injury: Current Concepts</td>
<td>Steven James, MB, ChB, FRCRC</td>
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<td>14:30 – 14:45</td>
<td>Skeletal Muscle Imaging in Children</td>
<td>Hee Kyung Kim, MD</td>
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<td>14:45 – 15:00</td>
<td>Novel Imaging Techniques for Assessment of Muscle</td>
<td>Jim Wu, MD</td>
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<td>15:00 – 15:30</td>
<td>BREAK</td>
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<tr>
<td>15:30 – 17:00</td>
<td>Core Curriculum: Sports Injuries in the Pelvis &amp; Trunk</td>
<td>David Rubin, MD, Antoine Moraux, MD</td>
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<tr>
<td>15:30 – 15:45</td>
<td>Groin and Trunk Muscle Injuries: Imaging Approach</td>
<td>Eugene McNally, MD</td>
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<td>15:45 – 16:00</td>
<td>Acute Athletic Groin Injuries: Flexors and Adductors</td>
<td>James Linklater, MBBS</td>
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<tr>
<td>16:00 – 16:15</td>
<td>Lateral Pelvic and IT Band Injuries</td>
<td>Miriam Bredella, MD</td>
</tr>
<tr>
<td>16:15 – 16:30</td>
<td>Pelvic Apophyseal Injuries</td>
<td>Julia Crim, MD</td>
</tr>
<tr>
<td>16:30 – 16:45</td>
<td>Nerve Blocks &amp; Injections for Pelvic Sports Injuries</td>
<td>Jan Fritz, MD</td>
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<tr>
<td>16:45 – 17:00</td>
<td>Thoracic &amp; Abdominal Wall Muscle Injuries Outside the Groin</td>
<td>Lawrence White, MD</td>
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<tr>
<td>8:00 - 10:00</td>
<td>Arthritis for Residency and Beyond</td>
<td>Anne Jurik, DMSc, Neils Egund, MD, DMSc</td>
</tr>
<tr>
<td>8:00 – 8:15</td>
<td>Hands and Feet Pitfalls for Diagnosis</td>
<td>Anne Cotten, MD</td>
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<tr>
<td>8:15 – 8:30</td>
<td>What Crystals Do and What They Look Like</td>
<td>George Hermann, MD</td>
</tr>
<tr>
<td>8:30 – 8:45</td>
<td>What Does MRI Tell Us About the Pathophysiology of Rheumatoid Arthritis</td>
<td>Monique Reijniers, MD, PhD</td>
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<tr>
<td>8:45 – 9:00</td>
<td>What Does MRI Tell Us About the Pathophysiology of Osteoarthritis</td>
<td>Ali Guermazi, MD, PhD</td>
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<td>9:00 – 9:15</td>
<td>Synovial Masses Presenting as Monoaorthritis</td>
<td>Iris-Melanie Noebauer-Huhmann, MD</td>
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<tr>
<td>9:30 – 9:45</td>
<td>MRI of the Axial Spine: When is it Spondyloarthritis and When is it Not?</td>
<td>Winston Rennie, MB, MSc(SEM), FRCR</td>
</tr>
<tr>
<td>9:45 – 10:00</td>
<td>Sacroiliac Joint: Degenerative Versus Inflammatory Arthritis</td>
<td>Jean-Denis Laredo, MD</td>
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<tr>
<td>10:00 – 10:30</td>
<td>BREAK</td>
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<tr>
<td>10:30 – 12:00</td>
<td>Spine Imaging (SAM)</td>
<td>David Wilson, FRCP, FRCPR, E. Remide Arkun, MD</td>
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<tr>
<td>10:30 – 10:45</td>
<td>CT Spine Imaging Pitfalls</td>
<td>Tudor Hughes, FRCR</td>
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<tr>
<td>10:45 – 11:00</td>
<td>MR Spine Imaging Pitfalls</td>
<td>Marcelo De Abreu, MD</td>
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<tr>
<td>11:00 – 11:15</td>
<td>Imaging of Spinal Trauma</td>
<td>D. Lee Bennett, MD, MA, MBA</td>
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<tr>
<td>11:15 – 11:30</td>
<td>Spine Infection</td>
<td>Suphaneewan Joavisidha, MD</td>
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<tr>
<td>11:30 – 11:45</td>
<td>Osteoporotic Fractures</td>
<td>James Griffith, MB, BCh, BAO, MD</td>
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<tr>
<td>11:45 – 12:00</td>
<td>Degenerative Disk Disease</td>
<td>Prudencia Tyrrell, MD</td>
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<tr>
<td>12:00 – 13:30</td>
<td>LUNCH</td>
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<tr>
<td>13:30 – 15:00</td>
<td>Rapid Fire ST Tumors (ARS)</td>
<td>Hassan Dous MD, MRCP, FRCPR, Frederic LeCouvet, MD</td>
</tr>
<tr>
<td>13:30 – 13:40</td>
<td>What’s New from the WHO Classification in Soft Tissue Tumors</td>
<td>Julie Fanburg-Smith, MD</td>
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<tr>
<td>13:40 – 13:50</td>
<td>High Water Content Masses: When Do I Need to Worry?</td>
<td>Mark J. Kransdorf, MD</td>
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<tr>
<td>13:50 – 14:00</td>
<td>Benign versus Malignant Peripheral Nerve Sheath Tumors: Radiologic Rules of the Road</td>
<td>Laura Fayad, MD</td>
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<tr>
<td>14:00 – 14:15</td>
<td>Lipoma vs. Well-Differentiated Liposarcoma:</td>
<td>Francesca D. Beaman, MD</td>
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<tr>
<td>14:15 – 14:30</td>
<td>Surgical Implications of Lipoma vs. Well-Differentiated</td>
<td>Carolyn D. Harris, MD, MS</td>
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<tr>
<td>14:30 – 14:40</td>
<td>Biopsy Technique: Does it Matter Where I Biopsy?</td>
<td>Jeffrey Peterson, MD</td>
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<td>14:40 – 14:50</td>
<td>Soft Tissue Tumor Local Recurrence: Tricks of the Trade</td>
<td>David M. Panicek, MD</td>
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<tr>
<td>14:50 – 15:00</td>
<td>Imaging of Synovial Neoplasms</td>
<td>Hillary W. Garner, MD</td>
</tr>
<tr>
<td>15:00 – 15:30</td>
<td>BREAK</td>
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</tr>
<tr>
<td>15:30 – 17:00</td>
<td>Rapid Fire Bone Tumors (ARS)</td>
<td>Violeta Vasilevska Nikodinovska MD, PhD, MSc, Paul O’Donnell, MBBS, FRCPC, FRCR</td>
</tr>
<tr>
<td>15:30 – 15:40</td>
<td>What’s New in the WHO Classification in Bone Tumors?</td>
<td>S. Fiona Bonar, MB, FRCP, Neils Egund, MD</td>
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<tr>
<td>15:50 – 16:00</td>
<td>Whole Body MRI for Tumor Imaging</td>
<td>Prudencia Tyrrell, MD</td>
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<tr>
<td>16:00 – 16:10</td>
<td>Enchondroma vs. Chondrosarcoma: Imaging Criteria</td>
<td>Robert Lambert, MB, FRCPR</td>
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<tr>
<td>16:10 – 16:20</td>
<td>Enchondroma vs. Chondrosarcoma: Surgical Perspective</td>
<td>Koenraad Verstraete, MD</td>
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<tr>
<td>16:20 – 16:30</td>
<td>Update on Multiple Myeloma</td>
<td>Michael Zlatkin, MD</td>
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<td>16:30 – 16:40</td>
<td>Imaging of Surface Bone Tumors</td>
<td>Daniel Vanel, MD</td>
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<td>16:40 – 16:50</td>
<td>Bone Tumor or Not That is the Dilemma</td>
<td>Rainer Erlemann, MD</td>
</tr>
<tr>
<td>16:50 – 17:00</td>
<td>Vertebral Bone Marrow: Metastasis or Mimicker</td>
<td>Andrea Baur-Melnyk, MD</td>
</tr>
</tbody>
</table>
SPORTS MEDICINE IMAGING

8:00 - 10:00 Knee
Moderators: Ian Beggs, FRCPE, FRCR
Andrea Rosskopf, MD

8:00 – 8:15 Bone/OCD Klaus Bohndorf, MD
8:15 – 8:30 Cruciate Ligaments Nancy Major, MD
8:30 – 8:45 Post-Op ACL Philip Robinson, FRCR
8:45 – 9:00 Menisci Andrew Grainger, BM, BS, MRCP, FRCR
9:00 – 9:15 Posteriorlateral Corner William Palmer, MD
9:15 – 9:30 Soft Tissue, Nerves, and Vascular Structures
John Crues, MD, MS
9:30 – 9:45 Extensor Mechanism David Rubin, MD
9:45 – 10:00 Lesions About the Proximal Tibiofibular Joint
Josef Kramer, MD

10:00 - 10:30 BREAK

10:30 - 12:00 Hip
Moderators: Suzanne Anderson, MD, PhD
Hema Choudur, MBBS, FRCPC

10:30 – 10:45 Hip Joint MRI Assessment: Pitfalls, Variation and Myths
Bruno Vande Berg, MD, PhD
10:45 – 11:00 Pediatric Hip Imaging Filip Vanhoenacker, MD, PhD
11:00 – 11:15 MRI of FAI: How to Assess and What to Report
Donna Blankenbaker, MD
11:15 – 11:30 Hip Surgery: How Does Imaging Help?
Michael Dienst, MD
11:30 – 11:45 Post-op Hip MRI: Differentiating Normal from Abnormal
Tobias Dietrich, MD
11:45 – 12:00 Hip Intervention: Its Role in Diagnosis and Treatment
Luca Sconfienza, MD

12:00 - 13:30 LUNCH

13:30 - 15:00 Foot/Ankle: An MRI Alone Will make the Diagnosis - Or Will It?
Moderators: Joseph Craig, MB, ChB, Charles Bush, MD

13:30 – 13:45 Lateral Ankle Ligament Anatomy and Injuries
Maryam Shahabpour, MD
13:45 – 14:00 Medial Sided Ankle Pain: Deltoid Ligament and Beyond
Julia Crim, MD
14:00 – 14:15 Midfoot Sprains - More than Just the Lisfranc Ligament
Carolyn Sofka, MD
14:15 – 14:30 Making a Break For It: Tendon Subluxation/Dislocation
Ramy Mansour, MD
14:30 – 14:50 Turf Toe - Not Just for American Football Players
Hilary Umans, MD
14:50 – 15:00 Ultrasound of Acute Foot and Ankle Sports Injuries
Miha Taljanovic, MD, PhD

8:00 - 10:00 Imaging Orthopedic Hardware
Moderators: Thomas LeCorroller, MD, PhD
Theodore Miller, MD

8:00 – 8:15 MR Imaging of Metal: How To Do It
Christian Pfirrmann, MD, MBA
8:15 – 8:30 CT Scanning of Metal: How To Do It
Kenneth Buckwalter, MD, MS, MBA
8:30 – 9:00 Multimodality Imaging of Hip and Knee Replacements
Theodore Miller, MD, FACR
9:00 – 9:20 Imaging of Shoulder Replacements Alice, Ha, MD, MS
9:20 – 9:40 Imaging of Ankle Replacements
Laura Bancroft, MD, FACR
9:40 – 10:00 Plates and Screws - What Do They Do?
Marcelo Bordalo-Rodrigues, MD, PhD

10:00 - 10:30 BREAK

10:30 - 12:00 Imaging Peripheral Nerves with Detailed Anatomy and Lesion Characterization
Moderators: Mario Maas, MD, PhD
Avneesh Chhabra, MD

10:30 – 10:55 Ultrasound of the Brachial Plexus, Pathology and Technique Made Easy
Carlo Martinoli, MD
10:55 – 11:05 MR Neurography: Current Perspectives and Literature Review
Gustav Andreisek, MD, MBA
11:05 – 11:20 Peripheral Nerve Anatomy and Lesions in the Ankle and Foot
Jean Luc Drape, MD
Catherine Petchprapa MD
11:45 – 12:00 Peripheral Nerve Lesions Around the Shoulder, How to Make the Imaging Diagnosis?
Ronald Adler, MD, PhD

12:00 - 13:30 LUNCH

13:30 - 15:00 Cartilage/Bone (SAM)
Moderators: Garry Gold, MD, Jung-Ah Choi, MD

13:30 – 13:45 Normal Cartilage Structure Richard Kijowski, MD
13:45 – 13:55 Fast Imaging - 5 Minute Knee MRI
Soterios Gyftopoulos, MD
13:55 – 14:05 Isotrophic 3D T2 Mapping Patrick Omoumi, MD, PhD
14:05 – 14:15 Identifying Hidden Zones of the Far Posterior Cartilage of the Femoral Condyles
John Crues, MD, MS
14:15 – 14:30 Cartilage Repair – Microfracture
Thomas Link, MD, PhD
14:30 – 14:45 Cartilage Repair – ACI
Carl Winalski, MD
14:45 – 15:00 Lesions at the Osteochondral Junction
Christine Chung, MD
ONE-DAY PATHOLOGY ORTHOPEDIC COURSE

WHAT IS NEW IN BONE?
Radiology, Pathology and Surgical Treatment: An Updated Sunday Interdisciplinary Bone Course Including German-Speaking Presenters

Sunday, September 23, 2018
Time: 08:30 - 15:30  |  Location: Charlottenburg

COURSE DIRECTORS
Dr. Julie C. Fanburg-Smith  Orthopedic and Soft Tissue Pathology
Dr. Mark D. Murphey  Musculoskeletal Radiology
Dr. Franklin H. Sim  Orthopedic Oncologic Surgery

FOR COMPLETE PROGRAM DETAILS:
internationalskeletalsociety.com

TUESDAY, SEPTEMBER 25, 2018

ULTRASOUND COURSE 2018 – “MUSCLE, NERVE AND FAT”

FOR COMPLETE ULTRASOUND AGENDA
internationalskeletalsociety.com

COMBINED GROUP
ULTRASOUND LECTURES AND DEMONSTRATIONS WILL INCLUDE:

► Normal Muscle, Nerve and Fat
► Brachial Plexus
► Upper Extremity Nerves
► Lower Extremity Nerves

INDIVIDUAL GROUPS
ULTRASOUND DEMONSTRATIONS WILL INCLUDE:

► Muscle Injury
► Muscle Masses
► Muscle Inflammation
► Guided Treatment of Muscle Injury
► Peripheral Nerve Abnormalities and Entrapments
► Guided Treatment of Peripheral Nerve Abnormalities
► Fat Abnormalities (e.g. lipoma, fat necrosis, cellulitis)
LOCATION: POTSDAM FOYER
Tuesday, September 25, 2018 07:00 – 17:00
Wednesday, September 26, 2018 07:00 – 17:00
Thursday, September 27, 2018 07:00 – 17:00
Friday, September 28, 2018 07:00 – 17:00

LOCATION: POTSDAM II
Wednesday, September 26, 2018 07:00 – 16:00
Thursday, September 27, 2018 07:00 – 16:00
Friday, September 28, 2018 07:00 – 16:00

WELCOME RECEPTION
WEDNESDAY, SEPTEMBER 26, 2018
TIME: 18:30 - 20:30
LOCATION: POTSDAM II
ATTIRE: Business Casual

**COST:** Two tickets included in registration fee. Additional guest tickets are $50 each.

This year’s Welcome Reception will be held in Potsdam II inside of the InterContinental Berlin. Visit with exhibitors and colleagues while sampling an array of delicious foods.

*Times and locations are subject to change

WELCOME RECEPTION
WEDNESDAY, SEPTEMBER 26, 2018
TIME: 18:30 - 20:30
LOCATION: POTSDAM II
ATTIRE: Business Casual

HOTEL, TRAVEL & TRANSPORTATION & REGISTRATION INFORMATION

**HOTEL INFORMATION**
InterContinental Berlin
Budapester Strasse 2
Berlin, 10787, Germany
Main: +49 30 26020 | Fax: +49 30 2602 2600

RESERVATIONS: +49 30 26020 or https://book.passkey.com/gt/216143399?gtid=6cfad00571a0ed4aa16813f994ff8d2

**ROOM RATE**
ISS has negotiated a discounted rate of 209 Euros per night at the InterContinental Berlin.

**HOTEL DEADLINE**
The cut-off-date for online bookings is August 9, 2018. ISS encourages you to make your reservation early, as the hotel and discount block may sellout before this date. After this date, guests can continue to reserve rooms via phone or email. Reservations will be accepted based on availability.

**RESERVATIONS**
Attendees are responsible for making their reservations by calling the hotel at +49 30 26020. Please reference the ISS 2018 Meeting to receive the discounted rate. Reservations can also be made online at https://book.passkey.com/gt/216143399?gtid=6cfad00571a0ed4aa16813f994ff8d2

**HOTEL DEPOSIT AND CANCELLATION POLICY**
Rooms may be cancelled by individual guests without a charge until 14 days prior to arrival. For reservations of more than 5 rooms per night within the block, the InterContinental reserves the right to adjust the cancellation terms.

**PARKING**
Car parking is available
- Self-Parking Fee: 26 EUR
- Valet parking is available
- Valet Parking Fee: 26 EUR
- Underground parking 26.00 EUR daily fee – 126 spaces
  Valet parking is also available.

**DIRECTIONS FROM THE AIRPORT**
TEGEL AIRPORT (TXL): Take Bus X9 to “Zoologischer Garten”. Change to Bus 200, Directions from Airport “Michelangelostrasse” to “Budapester Strasse”. The bus stops in front of the hotel. Or take a 10 minute walk / 500m from “Zoologischer Garten” to the hotel.

SCHOENEFELD (SXF): Take the RE7 or RB14 train to “Zoologischer Garten”. Change to Bus 200, direction “Michelangelostrasse” to “Budapester Strasse”. The bus stops in front of the hotel. Or take a 10 minute walk / 500m from “Zoologischer Garten” to the hotel. Ticket zone is ABC.

**REGISTRATION INFORMATION**
Registration Fee Includes:
- Entrance to Refresher Course
- Breakfasts
- Two tickets to the Welcome Reception
- Program Materials

**ULTRASOUND COURSE**
Registration for the Ultrasound Course on Tuesday, September 25, 2018, is limited and will be allocated on a first-come, first-served basis to the first 100 participants upon payment of the registration fee. Please be sure to register on the meeting registration form if you wish to attend.

**EARLY REGISTRATION DEADLINE**
Meeting registration forms must be received by the ISS Executive Office by 08/4/2018 to receive the discounted early registration rate. All forms received after this deadline will be assessed the regular registration fee.

**REGISTRATION CANCELLATION AND REFUND POLICY**
Registration refund requests must be submitted in writing to the ISS Executive Office no later than 08/4/2018. All refund requests will be subject to a $100 processing fee. No refunds will be made after 08/4/2018

**SPECIAL NEEDS**
For accommodations on the basis of disability or special dietary needs, please call +1 847-752-5355.

**CONTACT THE ISS EXECUTIVE OFFICE BY:**
Phone: +1 847-752-5355 | Fax: +1 847-960-3861
Email: info@internationalskeletalsociety.com
Website: www.internationalskeletalsociety.com
The deadline for discounted early registration is **08/4/2018**. After 08/4/2018, regular registration fees will apply to online and onsite registration. Registration Fees are subject to change. Rates are all USD. To lock in these rates, **REGISTER NOW!**

**PLEASE SELECT THE CATEGORY THAT BEST DESCRIBES YOUR STATUS:**

- Industry Employee
- Other Medical Professional
- Fellow
- Pathologist
- Full Time Administrator
- Physician
- Non Physician Provider
- Radiologist
- Researcher
- Resident
- Rheumatologist
- Student/Trainee

**INDUSTRY REGISTRATION** - Industry Employee whose company is already supporting ISS OR Industry Medical Science Liaison .

- $820 (Proof of MSL Title may be required before confirmation of registration)

Industry Employee whose company is NOT already supporting ISS .

- $1,250

Your submission will need to be approved prior to confirmation of your registration. Approval may be based on current Industry support. To find out if your company is currently supporting ISS, please contact Donna in the Registration Department at +1 847-752-5355 or by email at donna@veritasmeetings.com

**HOW DID YOU LEARN ABOUT THIS CONFERENCE? (CHECK ALL THAT APPLY)**

- Word of Mouth - Colleague
- ISS Website
- Email From ISS
- Email From Other Societies (DGMSR, SSR, etc.)
- Skeletal Radiology Journal
- Advertisement in Professional Journal
- Facebook Advertisement
- Website Advertisement
- Calendar - Monthly Listing
- Registration Brochure Mailer
- Flyer-Postcard at another meeting
- Promotional Slides at another meeting

**PLEASE PRINT CLEARLY**

Title:  
- Dr.  
- Prof.  
- Mr.  
- Mrs.  
- Ms.  
- Other: 

First Name (Forename/Given Name): 

Last Name (Surname/Family Name): 

Academic Degree(s): 

Badge First Name: 

Address:  
- Home  
- Office

City:   
State/Province:   
Postal Zip Code: 

Country: 

Phone:   
Fax: 

Email: 

**MEETING REGISTRATION**

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<th>REGISTRATION CATEGORIES</th>
<th>EARLY DISCOUNTED (through 08/4/2018)</th>
<th>REGULAR FEES (after 08/4/2018)</th>
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<td>$820</td>
<td>$920</td>
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<tr>
<td>Non-Member Practicing Physician</td>
<td>$620</td>
<td>$720</td>
<td>=$_______</td>
</tr>
<tr>
<td>Non-Physician Provider (Nurse, PA, Technologist)</td>
<td>$620</td>
<td>$720</td>
<td>=$_______</td>
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<td>Resident Expected Graduation Year</td>
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<tr>
<td>Fellow Expected Graduation Year</td>
<td>$620</td>
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<td>=$_______</td>
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<tr>
<td>Student Expected Graduation Year</td>
<td>$620</td>
<td>$720</td>
<td>=$_______</td>
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**ULTRASOUND COURSE REGISTRATION**

- Ultrasound Course – September 25, 2018 (Early Discount BEFORE 08/4/2018) $250 $325 

  (= $_______)

(Pre-registration is required for this course. There is a 100 person maximum, so we encourage you to register early.)
PATHOLOGY/ORTHOPEDIC
- One-Day Pathology Orthopedic Course $100 = $________
- Optional opportunity to observe the ISS Members Meeting if registering for the Pathology/Orthopedic Course (optional opportunity for non members) $50 = $________

SELF-ASSESSMENT MODULES REGISTRATION
(PLEASE NOTE: *Self-Assessment Module fees are NOT included with registration)
- $25 = $________

ADDITIONAL WELCOME RECEPTION TICKETS FOR NON-REGISTERED GUESTS:
*Two tickets to the Welcome Reception are included with your registration. Please only purchase additional tickets if you are planning to bring additional guests to this event.

Welcome Reception - Wednesday September 26, 2018 # of tickets = ______ at $50 per ticket = $________

Total Registration Fee = $________
Total Special Events Tickets = $________
GRAND TOTAL = $________

PAYMENT INFORMATION
The ISS requires full payment for registration fees and optional activities by check or credit card.
- Check* (payable to the ISS)  
- Visa  
- MasterCard  
- American Express  
- Discover
*All fees must be paid in US dollars. Checks must be drawn in US dollars, on a US bank, and made payable to the International Skeletal Society (ISS) (Tax ID #23-7366930). Be sure to print your name on the check.

Name on Credit Card
Billing Address:
Signature:
The issuer of the card identified on this item is authorized to pay the amount shown as TOTAL upon proper presentation. I promise to pay such TOTAL (together with any other charges due thereon) subject to and in accordance with the agreement governing the use of such card.

PHONE REGISTRATIONS CANNOT BE ACCEPTED.
Acceptable registration methods include
- By Fax: +1 847-960-3861
- By Mail: International Skeletal Society
  1061 East Main Street, Suite 300
  East Dundee, IL 60118
- Online: www.internationalskeletalsociety.com

If paying by check, please forward payment to:
International Skeletal Society
Attn: Registration
1061 East Main Street, Suite 300
East Dundee, IL 60118

*Wire Transfers
Please email info@internationalskeletalsociety.com for detailed wire transfer information

REGISTRATION CANCELLATION & REFUND POLICY
Registration refund requests must be submitted in writing to the ISS Executive Office by 08/4/2018. All refund requests will be subject to a $100 processing fee. No refunds will be made after 08/4/2018.
International Skeletal Society
1061 East Main Street | Suite 300 | East Dundee, IL 60118

RETURN SERVICE REQUESTED