

## **2026 IMPLANT POLYMERS: UHMWPE AND PEEK CONFERENCE**

Wednesday & Thursday, June 17-18, 2026  
Bossone Research Enterprise Center, Drexel University  
Philadelphia, USA

Hosted by Drexel University and the University of Turin

The purpose of the meeting is to bring together engineers, scientists, regulators, and clinicians from academia, industry, and government to present leading edge research on advancements in medical-grade UHMWPE, PEEK, and the rapidly growing field of polymer implant additive manufacturing technology. In addition to UHMWPE and PEEK, the Combined Meeting will also broadly showcase point-of-care additive manufacturing of implantable polymers.

### **Scientific and Organizing Committee and Invited Speakers:**

**Co-Presidents:** Pierangiola Bracco, Ph.D., Steven Kurtz, Ph.D.

**Organizer:** Hannah Spece, Ph.D.

**Invited Speakers:** Matthew DiPrima, Ph.D.  
Ryan Roeder, Ph.D.

**Panel Moderator  
& Members:** Ryan Siskey, M.S.  
Alan Porporati, Ph.D.  
John Bowsher, Ph.D.  
Ruth Heckler, M.S.  
Raelene Cowie, Ph.D.

### **Sponsorship:**

We are grateful for Celanese's Platinum Sponsorship of the 2026 Combined Meeting, as well as Silver Sponsorship from Gyroid LLC and Bronze Sponsorships from Invibio, Orthoplastics, Mitsubishi Chemical Advanced Materials, and CeramTec. Stryker Orthopaedics and Exponent sponsor our coffee breaks.

## 2026 IMPLANT POLYMERS: UHMWPE AND PEEK CONFERENCE AGENDA

Wednesday, June 17, 2026  
Day One

7:00 AM

**On-Site Registration Opens, Breakfast Available**

8:00 AM

**Opening Remarks**

Steven Kurtz, Ph.D.

8:10 AM

**Welcome**

Amanda Dresch, Celanese

### **SESSION I: Clinical Performance of UHMWPE**

**Session Moderator:** Steve Kurtz

8:15 AM

**Podium Talk 1:** Innovation in Medical Implants Across Polymer Families

Presenter: Victoria Black, B.S., Celanese

8:30 AM

**Podium Talk 2:** Volumetric Wear of Highly Cross-linked Polyethylene Sockets in Total Hip Arthroplasty Differs Across Brands: A Retrieval Study

Presenter: PD Dr. med. Peter Wahl, University of Basel; University of Bern; Birshof Hospital, Muenchenstein

8:45 AM

**Podium Talk 3:** Spectroscopic Studies of UHMWPE Hip and Knee Explants Using XRD, UV-Vis, FT-IR and ESR Techniques

**Presenter:** MD Farhan Azim, B.S., University of Memphis

9:00 AM

**Podium Talk 4:** Polyethylene Wear in Reverse Total Shoulder Arthroplasty: Is Osteolysis at the Horizon?

Presenter: Robin Pourzal, Ph.D., Rush University

9:15 AM

**Podium Talk 5:** From UHMWPE to Vitamin E-Stabilized HXLPE: Material-Driven Evolution and Clinical Survivorship of the Isoelastic RM Monoblock Acetabular Cup

Presenter: Frank Eitel, Enovis

9:30 AM

**Podium Talk 6:** Nitrided Bearings Against Polyethylene

Presenter: Mike Kurtz, Ph.D., Gyroid LLC

9:45 AM

**Morning Coffee Break**

**SESSION II: UHMWPE in Alternative Bearing Pairs**

**Session Moderator:** Ryan Siskey

10:15 AM

**Podium Talk 7:** Regulatory Challenges in Predicting Wear Performance of Novel Bearing Surfaces for Orthopedic Devices

Presenter: John Bowsher, Ph.D., U.S. Food and Drug Administration (FDA)

10:30 AM

**Podium Talk 8:** Evaluation of a Modern TiN-Coated Femoral Component: from Bench to Bedside

Presenter: Geoffrey Westrich, M.D., Stryker Orthopaedics

10:45 AM

**Podium Talk 9:** Preservation of UHMWPE Wear Performance by ADLC-Coated Titanium Glenspheres Under High Demand Reverse Shoulder Conditions

Presenter: Ruth Heckler, M.S., Enovis

11:00 AM

**Podium Talk 10:** Third Body Wear of an All-Polymer Total Knee Replacement

Presenter: Raelene Cowie, Ph.D., University of Leeds

11:15 AM

**Podium Talk 11:** Polyethylene Wear in Combination with Ceramic Femoral Components in Total Knee Replacement Under Standard and Abrasive Conditions

Presenter: Alan Porporati, Ph.D., CeramTec

11:30 AM

**Podium Talk 12:** Abrasive Damage in Orthopedics: Test Methods Past, Present, and Future

Presenter: Ryan Siskey, M.S., Exponent

11:45 AM

**Panel discussion:** Abrasive Wear Test Methods for UHMWPE in Alternative Bearing Pairs

Moderator: Ryan Siskey

Participants: Alan Porporati, John Bowsher, Ruth Heckler, Raelene Cowie

12:15 PM

**Rapid Fire Talks:** 3-minute presentations of selected UHMWPE posters

12:30 PM

**Lunch and Poster Discussions**

**SESSION III: Oxidation in UHMWPE**

**Session Moderator:** Pierangiola Bracco

1:45 PM

**Podium Talk 13:** The Oxidation Resistance of UHMWPE Containing a Chemically Bonded Vitamin E Analog

**Presenter:** Anuj Bellare, Ph.D., Polymerix Technologies

2:00 PM

**Podium Talk 14:** A Solution to Potentially Eliminate Oxidative Degradation and Enhance the Functional Performance of UHMWPE Liners in Artificial Joints

**Presenter:** Prof. Dr. Rizwan Gul, University of Engineering and Technology, Peshawar, Pakistan

2:15 PM

**Podium Talk 15:** Free Radical Persistence and Oxidative Aging in Conventional and Vitamin E-Stabilized UHMWPE

**Presenter:** Afsana Sharmin, M.S., University of Memphis

2:30 PM

**Podium Talk 16:** Lipid Peroxidation-Derived Aldehydes: A Novel Oxidation Pathway in UHMWPE Orthopedic Implants

**Presenter:** Javier Poves, M.S., University of Zaragoza

2:45 PM

**Podium Talk 17:** Failure of Sequentially Annealed Highly Cross-linked UHMWPE Inserts – Is It Related to Oxidation?

**Presenter:** Therese Bormann, Ph.D., Heidelberg University Hospital, Germany

3:00 PM

**Podium Talk 18:** Oxidation Study of Super Crosslinked Gradient UHMWPE

**Presenter:** Zhangtao Zhang, Ph.D, b-ONE Ortho Corp

3:15 PM

**Afternoon Coffee Break**

**SESSION IV: UHMWPE Properties, Processing, and Testing**

**Session Moderator:** Anuj Bellare

3:45 PM

**Podium Talk 19:** Wear Properties of Bupivacaine/UHMWPE Blends

**Presenter:** Nicoletta Inverardi, Ph.D., Harris Orthopaedics Laboratory, Massachusetts General Hospital; Harvard Medical School

4:00 PM

**Podium Talk 20:** Annealing's Impact on the Microstructure and Mechanical Behavior of Vitamin E Containing Highly Crosslinked UHMWPE

Presenter: Daniel Weller, Ph.D., Stryker Orthopaedics

4:15 PM

**Podium Talk 21:** Processing and Evaluation of Graphene Oxide Reinforced UHMWPE Nanocomposites for Acetabular Cups

Presenter: Suhail Attar, Ph.D., Robert Gordon University

4:30 PM

**Podium Talk 22:** A Novel Method for Measuring Residual Stress in Consolidated Implantable Grade UHMWPE

Presenter: Katie Schindler, B.S., Mitsubishi Chemical Group

4:45 PM

**Podium Talk 23:** Thickness-Driven Normalization of UHMWPE Small Punch Test Results for Expanded ASTM F2977 Usability

Presenter: Michael Tartaglia, B.S., Stryker Orthopaedics

5:00 PM

**Podium Talk 24:** Gentamicin Eluting UHMWPE as a Durable, Antimicrobial Spacer Material for Two Stage Revision Arthroplasty

Presenter: Mehmet Asik, Ph.D., Harvard University

5:15 PM

**Podium Talk 25:** Novel Spectroscopic Approaches for Oxidation Index Assessment in UHMWPE Implants

Presenter: Azita HassanMazandarani, M.S., Temple University

**Day 1 Meeting Adjourns**

7:00 PM

**Gala Dinner at Reading Terminal Market**

**2026 IMPLANT POLYMERS: UHMWPE AND PEEK CONFERENCE AGENDA**

**Thursday, June 18, 2026**

**Day Two**

8:00 AM

**On-Site Registration Opens, Breakfast available**

**SESSION V: PEEK Bioactivity and Use in Devices**

**Session Moderator:** Steve Kurtz

9:00 AM

**Invited Talk 1:** Making PEEK Great Again: A HAPPE Journey from Concept to Commercialization

Presenter: Ryan Roeder, Ph.D., University of Notre Dame

9:30 AM

**Podium Talk 26:** BMSC Extracellular Matrix Formation on PEEK Lattices and a Collagen Membrane Interface

Presenters: Fedra Zaribaf, MEng, Ph.D., Invibio Ltd, UK

9:45 AM

**Podium Talk 27:** Commercial Approval of a Fully Polymeric Surgical Mitral Valve

Presenter: Ryan Stanfield, P.E., Ph.D., University of Utah; Foldax, Inc.

10:00 AM

**Podium Talk 28:** Biomechanical Evaluation of Carbon Fiber-Reinforced Polyether Ether Ketone (CFR-PEEK) versus Titanium Plates for Fixation of High Tibial Osteotomy

Presenter: Sherri Gambill, B.S., Invibio

10:15 AM

**Podium Talk 29:** CFR-PEEK in Orthopaedic Implants: What the Clinical Evidence Supports, What It Still Can't Answer, and How Evidence is Translated Into Use

Presenter: Dharmesh Patel, Ph.D., Invibio

10:30 AM

**Rapid Fire Talks:** 3-minute presentations of selected PEEK posters (no discussion until poster session)

10:45 AM

**Morning Coffee Break and Poster Discussions**

## **SESSION VI: 3D Printing at the POC and Characterization of 3DP PAEKs**

**Session Moderator:** James Smith

11:30 AM

**Invited Talk 2:** 3D Printed PAEK Implants and the Road to Point of Care Printing

Presenter: Matthew Di Prima, Ph.D., U.S. Food and Drug Administration (FDA)

12:00 PM

**Podium Talk 30:** The Road Towards Establishing Clinical Services to Develop and Produce Patient-Specific PAEK Implants in and by the Healthcare Facility at Point-of-Care: the Singapore General Hospital Experience

Presenter: Mark Tan Bangwei, MBBS, MRCS, FRCR, Singapore General Hospital

12:15 PM

**Podium Talk 31:** Evaluating the Static Mechanical Performance of Fused Filament Fabricated Anterior Lumbar Interbody Fusion PEKK and PEEK Devices

Presenter: Abigail Tetteh, Ph.D., Drexel University; Exponent Inc.

12:30 PM

**Podium Talk 32:** What Drives the Protein Adsorption of 3D Printed PAEK Polymers?

Presenter: Paul DeSantis, M.S., Drexel University

12:45 PM

**Podium Talk 33:** Optimization of FFF Process Parameters for Compressive Properties of Solid and Porous Si<sub>3</sub>N<sub>4</sub>-PEEK

Presenter: Tabitha Derr, M.S., Drexel University

1:00 PM

**Closing Remarks and Meeting Adjourn**

Steven Kurtz, Ph.D.

## Poster Presentations

### **UHMWPE (Day 1)**

**Title:** Effect of Chlorine Dioxide Terminal Sterilization on the Mechanical and Chemical Properties of UHMWPE Used in Total Joint Arthroplasty

Presenter: Michael Tartaglia, B. S., Stryker Orthopaedics

**Title:** Inflammatory Responses to Fine Wear Particles from Conventional and Highly Crosslinked Polyethylene Inserts

Presenter: Robin Pourzal, Ph.D., Rush University

**Title:** Influence of Terminal Sterilization Modality on Oxidative and Mechanical Properties of Crosslinked UHMWPE

Presenter: Ruth Heckler, M.S., Enovis

**Title:** Long-term Survivorship of a Cross-linked Polyethylene Knee System in Primary Total Knee Arthroplasty: an Australian Orthopaedic Association National Joint Replacement Registry Analysis

Presenter: Manoshi Bhowmik-Stoker, Ph.D., Stryker Orthopaedics

**Title:** Design of Hydroxyapatite Whisker Reinforced Polyetheretherketone Scaffolds for Bone In-Growth and Mechanical Integrity in Orthopedic Devices

Presenter: Luis Vega Lugo, B.S., University of Notre Dame

**Title:** In Vitro Apatite-Forming Ability of Hydroxyapatite Whisker Reinforced Polyetheretherketone

Presenter: Elizabeth O'Connell, University of Notre Dame

### **PEEK (Day 2)**

**Title:** Computational Modeling to Assess the Influence of Geometric Variations on the Axial Compressive Performance of PEKK and PEEK Lumbar Spinal Cages

Presenter: Abigail Tetteh, Ph.D., Drexel University; Exponent Inc

**Title:** Using Sulfonation to Alter Surface Properties of 3D Printed PAEK Polymers

Presenter: Paul DeSantis, M.S., Drexel University

**Title:** Fatigue strength of additively manufactured PEEK and Si3N4-PEEK cervical cages

Presenter: Tabitha Derr, M.S., Drexel University

**Title:** Fatigue Characterization of Quasi-Isotropic Carbon Fiber Reinforced PEKK Composite Panels for Orthopedic Trauma Plate Applications

Presenter: Arjun Sharma, M.S., Drexel University

**Title:** Effects of Hydrothermal Aging on the Flexural Properties of PEKK and LM-PAEK

Presenter: Jasmine Johnson, B.S., Drexel University