



ICMCTF 2021 Virtual Conference Overview

The International Conference on Metallurgical Coatings and Thin Films (ICMCTF 2021) will be adapted into a Virtual Conference comprised of Live and On Demand Sessions. The registration deadline is **April 30, 2021**; **all presenters must register by March 1, 2021**. The event will feature:

Virtual Conference Highlights

- Live Daily Sessions Monday – Thursday (2) and Friday (1)
- Live Plenary, Exhibitor Keynote, Special Interest, Student Award Finalists and Invited Talks—all with live Q&A Chat opportunities
- Live Friday Award Session with Sproul and Bunshah Honorary Lectures, live announcement of Student Awards, and Q&A opportunities
- Live Moderated Post Session Invited Speaker Special Sessions allowing for informal discussion and networking
- Live Post Session Virtual Sponsor Chat Rooms
- On Demand Oral Sessions
- On Demand Poster Sessions with a Mix of Pre-recorded (Video or Audio) Talks and/or PDF files
- Live and On Demand Sessions available on mobile app/desktop planner through June 30, 2021 and then to AVS members in the AVS Technical Library.

Time Zone: All Live Sessions will be held in Eastern Daylight Time (EDT). Please note that Live Sessions will also be recorded and added to the On Demand Sessions. [Time Zone Converter Tool](#)

Virtual Conference Quick Links

- [Conference Website](#)
- [Registration](#)
- [Presentation Instructions](#)
- [Viewing Instructions](#)

The ICMCTF 2021 Virtual Conference will kick off on Monday, April 26, 2021, with the [Plenary Lecture](#), followed by two parallel sessions of invited talks. Each morning's Live Sessions will follow this pattern, kicking off with a keynote talk from 10:00 – 11:00 am EDT followed by two parallel sessions of invited talks, being capped off by our Awards Session on Friday, April 30, 2021 [See schedule](#)

All Registered/Paid attendees will also be able to participate in the **Monday, April 26–Friday, April 30 Technical & Poster Sessions**. The live sessions will feature plenary, invited and honorary lectures. After each day's live sessions, we invite attendees to view the pre-recorded Technical & Poster Sessions On Demand. Posters will be a mix of pre-recorded (video or audio) talks and/or PDF files. [See schedule](#)

Virtual Conference Schedule

- **Live Session Schedule:** May be found on the next several pages or in the [ICMCTF 2021 Online Scheduler](#) and [Mobile App](#) (available in March). Live Sessions will be presented over the conference dates: April 26-30, 2021.
- **On Demand Session Schedule:** Will be posted prior to the event in the [ICMCTF 2021 Online Scheduler](#) and [Mobile App](#) (available in March) On Demand access will begin on April 26, 2021.

All sessions will be accessible via the [ICMCTF 2021 Online Scheduler](#) and/or [Mobile App](#) through June 30, 2021*. Live sessions will be presented via the Zoom platform over the conference dates (April 26-30, 2021). On Demand access will begin on Monday, April 26, 2021, 1:00 pm EDT.

**Access After June 30, 2021: AVS Platinum Members will have access to all On Demand Sessions in the AVS Technical Library until their membership expiration date.*

NOTE: All Live Sessions will be held in Eastern Daylight Time (EDT) - USA

SESSION SCHEDULE

MONDAY, APRIL 26, 2021

ICMCTF Monday Live #1: COATINGS FOR FLEXIBLE ELECTRONICS AND BIO APPLICATIONS

Moderators: **Barbara Putz**, Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland;
Jean Geringer, Mines Saint-Etienne, France

10:00 a.m. EDT	ICMCTF Chairs' Welcome Address: Chris Muratore , University of Dayton, USA; Greg Greczynski , Linköping University, Sweden Thank you to Sponsors, and Introduction of Plenary Speaker
10:15 a.m.	Plenary Lecture: Magnus Berggren , Linköping University, Sweden, Organic Bioelectronics – Nature Connected
11:00 a.m.	Break
11:15 a.m.	Flexible Printed Sensors for Biomechanical Measurements, Tse Nga Ng , University of California San Diego, USA
11:45 a.m.	Flexible Electronics: From Interactive Smart Skins to In vivo Applications, Denys Makarov , Helmholtz-Zentrum Dresden-Rossendorf e. V. (HZDR), Germany
12:15 p.m.	Biomimetic Extracellular Matrix Coating for Titanium Implant Surfaces to Improve Osteointegration, Sriram Ravindran , University of Illinois at Chicago, USA
12:45 p.m.	Closing Remarks & Sponsor Slide with Platinum Shout Outs
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

ICMCTF Monday Live #2: NEW HORIZONS IN BORON-CONTAINING COATINGS

Moderators: **Marcus Hans**, RWTH Aachen University, Germany, **Helmut Riedl**, TU Wien, Austria

11:00 a.m.	Welcome, Announcements, & Thank You to Sponsors
11:15 a.m.	Insights in the Structure, Defects and Stability of Mo ₂ BC Thin Films by Advanced Characterization Methods, Christina Scheu , Max-Planck-Institut für Eisenforschung GmbH, Germany
11:45 a.m.	Metal Diborides Everywhere: Conformal Coating, Infilling, and Alloying by Low Temperature CVD, John Abelson , University of Illinois at Urbana-Champaign, USA
12:15 p.m.	A Progress Report on Bulk MAB Phases, Michel Barsoum , Drexel University, USA
12:45 p.m.	Closing Remarks & Sponsor Slide with Platinum Shout Outs
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

Monday Post Live Session Events

1:00 – 2:30 p.m.	Live Moderated Post Session Discussion Room #1: Coatings for Flexible Electronics & Bio Apps Live Moderated Post Session Discussion Room #2: New Horizons In Boron-Containing Coatings Technical & Poster Sessions: Monday On Demand
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TUESDAY, APRIL 27, 2021

ICMCTF Tuesday Live #1: SURFACE ENGINEERING - APPLIED RESEARCH AND INDUSTRIAL APPLICATIONS

Moderators: **Satish Dixit**, Plasma Technology Inc., USA, **Christoph Schiffers**, CemeCon AG, Germany

10:00 a.m. EDT	Award Chairs Welcome Address: Ivan Petrov , Univ. of Illinois at Urbana-Champaign, USA Thank you to Sponsors, and Introduction of Student Finalists
10:15 a.m.	Student Award Finalist Talk: Enhanced High-temperature Oxidation Resistance of Hard TiB ₂ -rich Ti _{1-x} Al _x B _y Thin Films, Babak Bakht , Linköping University, Sweden
10:30 a.m.	Student Award Finalist Talk: The Magneto-Plasmonic Properties of Ag-Co Composite Nanostructures, Hoang Luong , University of Georgia, USA
10:45 a.m.	Student Award Finalist Talk: Nanoscale Stress and Microstructure Distributions across Scratch Track Cross-Sections in a Brittle-Ductile CrN-Cr Bilayer Film on Steel Revealed by X-ray Nanodiffraction, Michael Meindlhuber , Montanuniversität Leoben, Austria
11:00 a.m.	Break
11:15 a.m.	Silicon in Cutting Tools, Albir Layyous , Layyous Consulting, Israel

NOTE: All Live Sessions will be held in Eastern Daylight Time (EDT) – USA

11:45 a.m.	Stabilization of FCVAS Based Hybrid System for Deposition of Thick Tetrahedral Amorphous Carbon Films and its Applications, Jongkuk Kim , Korea Institute of Materials Science (KIMS), Republic of Korea
12:15 p.m.	Low Interfacial Toughness Materials for Effective Large-scale Deicing, Kevin Golovin , University of British Columbia, Canada
12:45 p.m.	Closing Remarks & Sponsor Slide with Platinum Shout Outs
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

ICMCTF Tuesday Live #2: TRIBOLOGY AND MECHANICAL BEHAVIOR OF COATINGS AND ENGINEERED SURFACES

Moderators: **Giovanni Ramirez**, Oxford Instruments, USA, **Michael Chandross**, Sandia National Labs, USA

11:00 a.m.	Welcome, Announcements, & Thank You to Sponsors
11:15 a.m.	PVD Coatings Interaction with the Environment and Influence of Substrate on Coating Performance, Bojan Podgornik , Institute of Metals and Technologies, Slovenia
11:45 a.m.	Insights into Indentation-Induced Cracking via 3D-FIB Tomography and HR-EBSD, Bo-Shiuan Li , University of Oxford, UK
12:15 p.m.	Photon Beam and Plasma Cloud – Programmable Surfaces, Anna Buling , ELB Eloxaalwerk Ludwigsburg GmbH, Germany
12:45 p.m.	Closing Remarks & Sponsor Slide with Platinum Shout Outs
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

Tuesday Post Live Session Events

1:00 – 2:30 p.m.	Live Moderated Post Session Discussion Room #1: Surface Eng-Applied Research & Industrial Apps Live Moderated Post Session Discussion Room #2: Trib & Mech. Behavior of Coatings & Eng Surf. Technical & Poster Sessions: Tuesday On Demand
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WEDNESDAY, APRIL 28, 2021

ICMCTF Wednesday Live #1: IN-SILICO DESIGN OF NOVEL MATERIALS BY QUANTUM MECHANICS & CLASSICAL METHODS

Moderators: **David Holec**, Montanuniversität Leoben, Austria, **Davide G. Sangiovanni**, Linköping University, Sweden

10:00 a.m. EDT	Program Chairs' Welcome: Greg Greczynski , Linköping University, Sweden Thank you to Sponsors & Introduction of Special Interest Talk
10:15 a.m.	Special Interest Talk: Materials Discoveries at Extreme Conditions: A Path Towards New Advanced Materials, Igor Abrikosov , Linköping University, Sweden
11:00 a.m.	Break
11:15 a.m.	Are Protective Coatings Predictable?, Jochen Schneider , RWTH Aachen University, Germany
11:45 a.m.	Controlling Phase and Microstructure of Ti-Cr-Al-N System Deposited by Arc Ion Plating, Kenji Yamamoto , Kobe Steel Ltd., Japan
12:15 p.m.	Theoretical Insights into Transition Metal Nitrides for Thermoelectric and Piezoelectric Applications, Björn Alling , Linköping Univ., IFM, Theoretical Physics Div., Sweden
12:45 p.m.	Closing Remarks & Sponsor Slide with Platinum Shout Outs
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

ICMCTF Wednesday Live #2: ADVANCED CHARACTERIZATION TECHNIQUES

Moderators: **Prabhakar Mohan**, Solar Turbines, Inc., USA, **Diederik Depla**, Ghent University, Belgium

11:00 a.m.	Welcome, Announcements, & Thank You to Sponsors
11:15 a.m.	Influence of the Microstructural Evolution of YSZ TBCs on their Thermal Insulation Potential, Germain Boissonnet , Université de La Rochelle, France
11:45 a.m.	High-Entropy Ceramic Thin Films; A Case Study of Nitrides, Oxides and Diborides, Paul Heinz Mayrhofer , TU Wien, Institute of Materials Science and Technology, Austria
12:15 p.m.	Characterization of Defects and their Dynamics using Transmission Scanning Electron Microscopy, Daniel Gianola , University of California Santa Barbara, USA
12:45 p.m.	Closing Remarks & Sponsor Slide with Platinum Shout Outs
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

Wednesday Post Live Session Events

Live Moderated Post Session Discussion Room #1: In-silico Des of Novel Matls by Quant Mech. & Class Meths Live Moderated Post Session Discussion Room #2: Advanced Characterization Techniques Technical & Poster Sessions: Wednesday On Demand

THURSDAY, APRIL 29, 2021

ICMCTF Thursday Live #1: HARD COATINGS AND VAPOR DEPOSITION TECHNOLOGIES

Moderators: **Farwah Nahif**, voestalpine eifeler-Vacotec GmbH, Düsseldorf, Germany,
Tiberiu Minea, Université Paris-Saclay, France

10:00 a.m. EDT	General Chair's Welcome: <i>Chris Muratore</i> , University of Dayton, USA; Thank You to Sponsors & Introduction of Exhibition Keynote Lecture
10:15 a.m.	Exhibition Keynote Lecture: Carbon based Coatings in Industrial Scale for Sustainable Surface Solutions, Jörg Vetter , Oerlikon Balzers Coating Germany GmbH, Germany
11:00 a.m.	Break
11:15 a.m.	Impact of Nitrogen Deficiency on the Phase Transformation of (Ti,Al)N Thin Films at Elevated Temperatures, Isabella Schramm , Sandvik Coromant R&D, Sweden
11:45 a.m.	Air-based Sputtering Deposition of Gradient Oxynitride Coatings, Fu-Hsing Lu , National Chung Hsing University, Taiwan
12:15 p.m.	Optimizing Ionization and Deposition Rate in High Power Impulse Magnetron Sputtering, Daniel Lundin , Linköping University, Sweden
12:45 p.m.	Closing Remarks & Sponsor Slide with Platinum Shout Outs
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

ICMCTF Thursday Live #2: THIN FILMS FOR ENERGY APPLICATIONS

Moderators: **Peter Kelly**, Manchester Metropolitan Univ., UK, **Glen West**, Manchester Metropolitan Univ., UK

11:00 a.m.	Welcome, Announcements, and Thank You to Sponsors
11:15 a.m.	Advanced Nanomaterials for Energy-Related Applications, Eva Schubert , University of Nebraska-Lincoln, USA
11:45 a.m.	Photocatalytic Bismuth Oxide Coatings and their Potential for Water Treatment Applications, Marina Ratova , Manchester Metropolitan University, UK
12:15 p.m.	High Entropy Materials For Energy Applications, Jyh-Ming Ting , National Cheng Kung University, Taiwan
12:45 p.m.	Closing Remarks, Thank You's, & Sponsor Slide with Platinum Shout Outs
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

Thursday Post Live Session Events

1:00 – 2:30 p.m.	Live Moderated Post Session Discussion Room #1: Hard Coatings and Vapor Deposition Tech. Live Moderated Post Session Discussion Room #2: Thin Films for Energy Applications Technical & Poster Sessions: Thursday On Demand
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FRIDAY, APRIL 30, 2021

ICMCTF Friday Live: AWARDS SESSION

Moderators: **Ivan Petrov**, Univ. of Illinois at Urbana-Champaign, USA, **Andrey Voevodin**, Univ. of North Texas, USA

10:00 a.m. EDT	Program Chairs' Welcome: <i>Greg Greczynski</i> , Linköping University, Sweden, Samir Aouadi , University of North Texas, USA Thank you to Sponsors & Introduction of Special Interest Talk
10:15 a.m.	Special Interest Talk: Design, Metallurgy and Manufacturing Technologies of Targets for Hard Coating and Tribological Applications, Peter Polcik , Plansee Composite Materials GmbH, Germany
11:00 a.m.	Break, Announcement of Student Awardees, & Introduction of Bill Sproul Awardee
11:15 a.m.	Bill Sproul Award and Honorary ICMCTF Lecture: Transition Metal Nitride Layers: New Phases and New Properties, Daniel Gall , Rensselaer Polytechnic Institute, USA
11:45 a.m.	Break & Introduction of R.F. Bunshah Awardee
12:00 p.m.	R.F. Bunshah Award and ICMCTF Honorary Lecture: From a Sparkling Brass Chain and Twitching Frog Legs: The Astonishing Path to Plasma-Based Advanced Coatings, André Anders , Leibniz Institute of Surface Engineering (IOM), Felix Bloch Inst., Leipzig Univ., Germany
12:45 p.m.	Closing Remarks, Thank Yous & Sponsor Slide
12:50 p.m.	Session Over - View Technical & Poster On Demand Presentations

Friday Post Live Session Events

1:00 – 2:30 p.m.	Live Moderated Post Session Discussion: Awards Session Technical & Poster Sessions: Friday On Demand
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