

PROGRAM OF THE  
**PIRE PDC**

# MatCom-ComMat Workshop 2023

June 26 – July 01



Endorsed by ACERS  
Technical Interest Group



## GENERAL INFORMATION

**Tuesday, June 27 2023**  
**PIRE PDC Talks**

### Darmstädter Haus

Oberseitestraße 38  
A-6992 Hirschegg / Kleinwalsertal  
Austria

**Arrival:** Monday, check-in time is 4-6 PM. If you arrive before 4 PM, you are free to leave your luggage at Darmstädter Haus and explore the countryside. If you arrive after 6 PM, you will still be able to check in to Darmstädter Haus, however, you may not be served dinner, as dinner is served at 6:30 PM.

**Parking:** Some parking is available at Darmstädter Haus, no registration or prior notification required.

**Rooms:** The rooming list can be found at the reception. Rooms are provided with towels and bed linens; however, there is no room service. If you need fresh towels, please contact the front desk and they will provide you with fresh towels. Please carry toiletries, including soap and shampoo with you.

**Departure:** Saturday, after breakfast.

**Breakfast:** 8:00 - 9:00 AM

**Lunch:** Can be packed at breakfast

**Dinner:** 6:30 PM

There will be some suggestions for social activities in the afternoon but please feel free to organize them as you wish.

**09:00** Gurpreet Singh: Introductions and Update on the NSF PIRE Project

**09:15** Ralf Riedel, Martin Heilmaier: Introductions

**09:30** Peter Kroll: Pyrolysis Simulations and the Genesis of Carbon in Polymer-Derived Ceramics

**09:50** Gabriela Mera: To be Announced

### Break

**10:40** Chrystelle Salameh: Pyrolysis Simulations and the Genesis of Carbon in Polymer-Derived Ceramics

**11:00** Christel Gervais: Probing local environments in PDCs with solid-state NMR

**11:20** Nicholas Bedford: Understanding Processing-Structure-Property Relationships for Polymer Derived Ceramics Using Advanced Synchrotron Characterization and Modeling Techniques

**11:40** Michael Cinibulk: To be Announced

### Lunch

**13:15** Saravanan Arunachalam: PDC- Area of interest needed for Aerospace Community

**13:35** <sup>via Zoom</sup> Aly Badran: Effect of Microstructure on Matrix Cracking and Fiber Fracture in Unidirectional SiC-SiC Composites

Zoom link- <https://ksu.zoom.us/j/93668920428?pwd=QTBkb0xTdjZoYzZPY0lEcjR1c2hNZz09>  
Meeting ID: 936 6892 0428 Passcode: 759448

**Wednesday, June 28 2023**  
**PIRE PDC Talks**

**09:00** Spencer Dansereau: Thin Layer Deposition of Polymer-Derived SiC/Hf Ceramics via Microwave Heating

**09:15** Takhya Holley: Kinetic Analysis of Pyrolysis of Polymethylhydrosiloxanes (PMHS) Cross-linked with Divinylbenzene (DVB)

**09:30** Adane Muche Abebe: Synthesis and characterization of super thermally insulating transparent SiOC aerogels

**09:45** <sup>via Zoom</sup> Shakir Bin Mujib: Microstructure and Evolution Characteristics HfC Ceramics Derived From a Commercial Precursor

**10:05** <sup>via Zoom</sup> Sonjoy Dey: WS<sub>2</sub> Nanotube Embedded SiOC Fibers

**10:20** <sup>via Zoom</sup> Mohammed Rasheed: Assessment of Polymer-derived Quaternary CMCs

**10:40** Karsten Albe: Atomistic Modelling of Interface Phenomena using Machine-Learning Interatomic Potentials

**17:30** Departure to...

**18:30** Dinner at Sonna-Alp

**Thursday, June 29 2023**  
**MatCom-ComMat Talks**

**09:00** Jan Bernauer, Samuel Kredel, Nathalie Thor, Nils-Christian Petry: Single source precursor derived SiC and SiCN based ceramics – polymer modification, preparation as bulk and coating, structure and oxidation behavior

**Break**

**10:40** Mozhdeh Fathidoost: Thermal and Viscoelastic Behavior of Polymer-Derived Ceramic

**11:00** Mingxing Li: Microstructure design and properties of whisker reinforced SiCN composites

**11:20** Jurica Filipovic: Mechanical characterization and interdiffusion modeling of aluminized Mo-based high temperature materials

**11:40** Frauke Hinrichs: Oxidation behavior of Cr-Mo-Si solid solutions

**Friday, June 30 2023**  
**MatCom-ComMat Talks**

**09:00** Katharina Beck: Hot corrosion Type II of Mo-based alloys

**09:20** Georg Winkens: Mechanisms of plastic deformation in Mo-based alloys

**09:40** Andreas Czerny: Materials thermodynamics, kinetics and constitution

**10:00** Yuhan Cai: Sensitivity analysis: Phase-field modeling of microstructural evolution in Mo-Si-Ti alloy

**10:20** Hemanth Thota: Creep induced microstructural evolution of a novel high-performance eutectic Mo-Si-Ti alloy

**10:40** Ralf Riedel, Martin Heilmaier, Gurpreet Singh: Closing Words

Zoom link- <https://ksu.zoom.us/j/93668920428?pwd=QTBkb0xTdjZoYzZPY0lEejR1c2hNZz09>  
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