

PIRE



KANSAS STATE
UNIVERSITY

ASU Arizona State
University


University of Colorado
Boulder

 UNIVERSITY OF
TEXAS
ARLINGTON


Massachusetts
Institute of
Technology

 LEHIGH
UNIVERSITY

Workshop Chair
Gurpreet Singh
Workshop Committee
Rishi Raj
David Marshall
Alexandra Navrotsky
Himanshu Jain
Peter Kroll
Elsa Olivetti

SYNTHESIS • NANOSTRUCTURE • PROPERTIES
POLYMER-DERIVED CERAMIC FIBERS

NSF-PIRE-PDC VIRTUAL WORKSHOP

AUGUST 17-20, 2020

8 AM – 10 AM CT U.S. (3 PM – 5 PM CEST EUROPE)

AUGUST 17: DAY 1 (GRADUATE STUDENT PRESENTATIONS)		
Speaker	Title	
Prof. Gurpreet Singh P.I.	Overview of the Project. PDC Fiber Research and Education at K-State and Partner Universities	
Graduate student speaker	Advisor	Title
Zhongkan Ren	Gurpreet Singh Kansas State University	Fabrication and Characterization of Silicon Oxycarbide Fiber-mats via Electrospinning.
Aly Badran	David Marshall and Rishi Raj University of Colorado, Boulder	In-Situ visualization of Polymer-to-Ceramic Conversion Using Image Segmentation
Spencer Dansereau	David Marshall and Rishi Raj University of Colorado, Boulder	Polymer-Derived SiC-SiC Micro-Composites via Nano-Layer Infiltrations
Shariq Haseen	Peter Kroll University of Texas, Arlington	Impact of carbon morphology on elastic properties of SiCO ceramics
Dr. Gabriela Mera	Innovative Low-dimensional Nanocarbon-based Composites: A Voyage at the Nanoscale	

AUGUST 18: DAY 2 (INVITED TALKS)

Speaker	Title	
Dr. Giorgia Franchin	Direct Ink Writing of Polymer Derived Ceramics and Composites	
Dr. Martin Friess and Fabia Suess	SiC- and W-fibre Reinforced SiC(N) Composites Based on PIP- and LSI Processing	
Prof. Brett Compton	Material extrusion AM of SiC-reinforced PDCs	
Prof. Alex Navrotsky Co-P.I.	Thermodynamics, Structure, and Properties of PDCs and Related Materials	

AUGUST 19: DAY 3 (INDUSTRY& NATIONAL LAB INVITED TALKS)		
Speaker	Title	
Phuong Bui	Additive Manufacturing of Reinforced Ceramic Matrix Composites	
Zlatomir Apostolov	Challenges Towards Wider Adoption of Pre ceramic Polymers in Aerospace Applications	
Thomas Key	Understanding and Modeling the Pyrolysis of Pre ceramic Polymers	
Wayde Schmidt	Overview of Research Activities at Raytheon Technologies	

AUGUST 20: DAY 4 (UNDERGRADUATE STUDENT PRESENTATIONS)

Speaker	Advisor	Title
Maren Ellis	Gurpreet Singh Kansas State University	The 3D Printing of PDCs and Composites
Porter Herold	Gurpreet Singh Kansas State University	NMR Applied to PDCs
Jonathan Coria	Peter Kroll University of Texas, Arlington	Self-Diffusion in 2D Silicon Nitride
Michelle Dao	Peter Kroll University of Texas, Arlington	Diffusion in Silicon Oxycarbides in 2D Models
Jonathan Kroll	Peter Kroll University of Texas, Arlington	In-Situ Visualization of Polymer-to-Ceramic Conversion Using Image Segmentation
Alexander Hollar	Alex Navrotsky Arizona State University	Sulfides, Electrons, and the Origin of Life
Thomas Siggillino	Himanshu Jain Lehigh University	Analyzing the Microstructure of PDCs using Machine Learning
Isaiah Morris	Alex Navrotsky Arizona State University	Confined Nanodiamonds and their Thermodynamic Stability