



Agenda

Time	Event	Location
7:15 – 8:10 a.m.	Registration and Continental Breakfast	Regency Suite, Nebraska Union
8:10 – 8:25 a.m.	Welcome by Pat Pope, CEO, Nebraska Public Power District, and Prem Paul, Vice Chancellor for Research & Economic Development for the University of Nebraska-Lincoln	
8:30 – 9:00 a.m.	Dr. Linda Horton, Director, Materials Sciences and Engineering Division, BES, DOE Office of Science (Remote Video Presentation)	
9:00 – 9:30 a.m.	“In-Situ Electron Microscopy of Nanomaterials and Processes for Energy Applications” by Eli Sutter, Professor, MME	
9:30 – 10:00 a.m.	“Interface Engineering: Improve Mechanical Properties and Irradiation Tolerance of Materials by Tailoring Interfaces in Solids” by Jian Wang, Associate Professor, MME	
10:00 – 11:00 a.m.	Poster Session/Break 1	Colonial A & B, Nebraska Union
11:00 – 11:30 a.m.	“Two-Dimensional and Layered Materials for Novel Energy Technologies” by Peter Sutter, Professor, ECE	Regency Suite, Nebraska Union
11:30 – 12:00 p.m.	“Organic Ferroelectrics for Energy Applications” by Steve Ducharme, Professor, Physics	
12:00 – 1:00 p.m.	Invitation-Only Hosted Luncheon	Unity Room/212, Jackie Gaughan Multicultural Center
1:00 – 1:30 p.m.	“Nanostructured Carbons and Metal Chalcogenides for Energy Applications” by Alexander Sinitskii, Assistant Professor, Chemistry	Regency Suite, Nebraska Union
1:30 – 2:00 p.m.	“Femtosecond Laser Functionalization of Metallic Surfaces at the Nano and Micron Scales and Their Enhanced Properties” by Dennis Alexander, Professor, ECE	
2:00 – 2:30 p.m.	“Hybrid Perovskites Material for Energy Harvesting and Sensing” by Jinsong Huang, Associate Professor, MME	
2:30 – 3:30 p.m.	Poster Session/Break 2	Colonial A & B, Nebraska Union
3:30 – 4:00 p.m.	“Electrochemistry at Carbon Materials Relevant to Electronic Devices and Energy Storage” by Jody Redepenning, Professor, Chemistry	Regency Suite, Nebraska Union
4:00 – 4:30 p.m.	“How Can Surface Science Help Accelerate Materials Research For Energy Applications?” by Axel Enders, Associate Professor, Physics	
4:30 – 5:00 p.m.	“Tungsten Chalcogenide Photovoltaic Absorbers: Simulation and Experiment” by Natale Ianno, Professor, ECE	
5:00 p.m.	Closing Remarks by Mike Nastasi, Director, Nebraska Center for Energy Research Sciences	



Poster Session 1

10:00 – 11:00 a.m. | Colonial A & B, Nebraska Union

Title	Presenter(s)
"Electronic Structure and Rational Design of Novel Neutron Voltaics and Photovoltaics"	Peter Dowben
"Non-Equilibrium Nanoscale Materials"	Jeff Shield
"Valorization of CO ₂ to Organic Carbonates with Decorated Cerium Oxide"	Barry Cheung
"Novel Nanostructured Rare-Earth-Free High-Energy Magnetic Materials"	Balamurugan Balasubramanian (David J. Sellmyer)
"Ultra-Low Power Non-Volatile Memory Utilizing Voltage-Controlled Exchange Bias in a Cr ₂ O ₃ Based Thin Film Heterostructure"	Will Echtenkamp (Christian Binek)
"Increased Operational Temperature of Ultra-Low Power Spintronic devices"	Mike Street (Christian Binek)
"Radiation Tolerance of Nanostructured Ceramic/Metal Composite"	Qing Su (Mike Nastasi)
"Near-Field Radiation Heat Transfer for Energy and Phononics Applications"	Sidy Ndao
"Ultrasonic Inspection of High Scattering Materials for Energy Applications"	Joseph Turner
"Tailoring Charge and Lattice at the Nanoscale and Low Dimensions for Nanoelectronics and Spintronics"	Xia Hong
"Laser Shock Peening of Oxide-Dispersion-Strengthened Alloys for Generation-IV Nuclear Reactors"	Bai Cui
"Electric Field Control of Magnetism"	Shireen Adenwalla

Poster Session 2

2:30 – 3:30 p.m. | Colonial A & B, Nebraska Union

Title	Presenter(s)
"Wide Bandgap Semiconductors for Power Electronic Devices"	Jerry Hudgins
"Soft Systems for the Controlled Synthesis and Fabrication of Functional Materials"	Stephen Morin
"Liquid Aluminum Alloy as A Hybrid Anode for Redox Flow Battery"	Shumin Li (Li Tan)
"Inhomogenous Thin Films for Applications in Batteries and Solar Cells"	Eva Schubert
"Voltage-Controlled Boundary Magnetization and Order Parameter Switching in Magnetoelectric Cr ₂ O ₃ "	Junlei Wang (Christian Binek)
"Voltage-Controlled Magnetocaloric Effect for Near Room Temperature Refrigeration"	Prakash Giri (Christian Binek)
"Improved p-n Heterojunction Device Performance Induced by Irradiation in Amorphous Boron Carbide Films"	George Peterson (Mike Nastasi)
"Viscoelastic Behavior of Polymer Blends at the Nanoscale"	Joseph Turner
"Solid-State Formation of Wafer-Scale Graphene and Graphene Patterns on Dielectric Substrates"	Wei Xiong (Yongfeng Lu)
"Hexagonal Rare-Earth Manganites as Promising Photovoltaics and Light Polarizers"	Tula Paudel
"Physical and Transport Properties of Functionalized Poly(phenylene)'s, and Their Application in Vanadium Redox Flow Batteries"	Tim Largier (Chris Cornelius)