



ACS Northeast Regional Meeting 2022

Future Smart Materials Systems



Rochester Riverside Convention Center, Highland C, Rochester, NY
October 3-4, 2022

Symposium Organizer: Xiaocun Lu
Clarkson University, xlu@clarkson.edu

- **Interdisciplinary forum** on cutting-edge research and technology for developing future smart materials
- **28 invited speakers** with expertise in chemistry, materials, engineering, and manufacturing
- **Topics:** Polymers • Nanomaterials • Biomaterials • Biomedical Devices • Advanced Manufacturing
- **Welcome to join us at Rochester Riverside Convention Center, Highland C, October 3-4**



Session I: Polymer, Supramolecular and Nanoscale Materials I

October 3, 2022, 8:00 am – 12:00 pm; *Presider: Xiaocun Lu*

- 8:00-8:05** Symposium Opening Remarks
- 8:05-8:50** **Oleg Gang, Keynote Speaker**, Columbia University, Chemical Engineering
#524 Programmable nanoscale materials
- 8:50-9:15** **Robert Hickey**, Penn State University, Materials Science & Engineering
#525 Nanostructured block polymer muscles exhibiting reversible actuation
- 9:15-9:40** **Devon Shipp**, Clarkson University, Chemistry & Biomolecular Science
#526 Recyclable network polymers via disulfide exchange derived from thiolactone-containing monomers
- 9:40-10:00** Coffee Break
- 10:00-10:25** **Chong Cheng**, University at Buffalo, Chemical & Biological Engineering
#527 Biodegradable polymer-drug conjugates for pH-responsive release of anticancer drugs
- 10:25-10:50** **Xiaoran Hu**, Syracuse University, Chemistry
#528 Regulating reactivities using mechanical force
- 10:50-11:15** **Xiaocun Lu**, Clarkson University, Chemistry & Biomolecular Science
#529 Multiscale mechanically responsive polymeric systems: Design, applications, and beyond
- 11:15-11:55** **Melik Demirel, Keynote Speaker**, Penn State University, Engineering Science & Mechanics
#530 Squitex: Biomanufacturing of protein-based fibers for creating sustainable materials
- 11:55-12:00** Session Closing Remarks

Session II: Polymer, Supramolecular and Nanoscale Materials II

October 3, 2022, 1:00 pm – 5:00 pm; *Presider: Devon Shipp*

- 1:00-1:05** Session Opening Remarks
- 1:05-1:50** **Ayusman Sen, Keynote Speaker**, Penn State University, Chemistry
#531 Active matter swarms for cargo capture, transport, and delivery
- 1:50-2:15** **Julia Dshemuchadse**, Cornell University, Materials Science & Engineering
#532 Tuning emergent crystalline order in self-assembly simulations
- 2:15-2:40** **Geoffrey Hutchison**, University of Pittsburgh, Chemistry
#533 Interconverting electrical and mechanical energy with organic self-assembled piezoelectric films
- 2:40-3:00** Coffee Break
- 3:00-3:25** **Jun Liu**, University at Buffalo, Mechanical & Aerospace Engineering
#534 Degradation of organic molecules by tribovoltaic mechano-electrochemistry
- 3:25-3:50** **Wanliang Shan**, Syracuse University, Mechanical & Aerospace Engineering
#535 Smart materials with tunable properties based on low melting point alloys
- 3:50-4:15** **Rachel Steinhardt**, Syracuse University, Chemistry
#536 Design and synthesis of soft actuators for photo-control of multiscale movement
- 4:15-4:55** **Carmel Majidi, Keynote Speaker**, Carnegie Mellon University, Mechanical Engineering
#537 Soft intelligent materials with liquid metal and liquid crystal elastomer
- 4:55-5:00** Session Closing Remarks



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Session III: Materials Design, Manufacturing and Devices

October 4, 2022, 8:00 am – 12:00 pm; Presider: Xiaocun Lu

- 8:00-8:05** Session Opening Remarks
- 8:05-8:50** **Ulrich Wiesner, Keynote Speaker**, Cornell University, Materials Science & Engineering
#358 Future smart materials systems from ultrasmall silica nanoparticles
- 8:50-9:15** **James Henderson**, Syracuse University, Biomedical & Chemical Engineering
#359 Shape-memory polymer programming via printing
- 9:15-9:40** **Mitchell Anthamatten**, University of Rochester, Chemical Engineering
#360 Direct laser writing of shape-memory networks
- 9:40-10:00** Coffee Break
- 10:00-10:25** **Ahyeon Koh**, Binghamton University, Biomedical Engineering
#361 Upcycling compact disks for advanced soft bioelectronics
- 10:25-10:50** **Pranav Soman**, Syracuse University, Biomedical & Chemical Engineering
#362 Hybrid laser platform (HLP) for printing 3D multiscale multi-material hydrogel structures
- 10:50-11:15** **Chieh-Min Cheng**, Xerox, Inc.
#363 Multi-color 3D printing via single-vat grayscale digital light processing
- 11:15-11:55** **Cunjiang Yu, Keynote Speaker**, Penn State University, Biomedical Engineering
#364 Rubbery electronics and circuits
- 11:55-12:00** Session Closing Remarks

Session IV: Bioinspired Materials and Biomedical Applications

October 4, 2022, 1:00 pm – 5:00 pm; Presider: Xiaocun Lu

- 1:00-1:05** Session Opening Remarks
- 1:05-1:50** **Nicholas Abbott, Keynote Speaker**, Cornell University, Chemical & Biomolecular Engineering
#95 Stimuli-responsive and self-regulating liquid crystals
- 1:50-2:15** **Era Jain**, Syracuse University, Biomedical & Chemical Engineering
#96 Activated macrophage targeting nanoparticles-in-microparticles for treatment of post-traumatic osteoarthritis
- 2:15-2:40** **Davoud Mozhdehi**, Syracuse University, Chemistry
#97 Greasing proteins wheel: Harnessing post-translational lipidation for the biosynthesis of smart nanobiomaterials
- 2:40-3:00** Coffee Break
- 3:00-3:25** **Helen Zha**, Rensselaer Polytechnic Institute, Chemical & Biological Engineering
#98 One-pot chemical-free surface functionalization via silk fibroin self-assembly
- 3:25-3:50** **Jingjie Yeo**, Cornell University, Mechanical & Aerospace Engineering
#99 Innovating and characterizing bioinspired soft materials with multiscale models and machine-learned metamaterials
- 3:50-4:15** **Edmund Palermo**, Rensselaer Polytechnic Institute, Materials Science & Engineering
#100 Developing virucidal N95 respirator materials
- 4:15-4:55** **Donghui Zhu, Keynote Speaker**, Stony Brook University, Biomedical Engineering
#101 Bioresorbable metals as smart medical implants
- 4:55-5:00** Symposium Closing Remarks

This symposium is not possible without the following sponsorship. The symposium organizer and speakers would like to thank all the sponsors.



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