



## OTTO H. YORK DEPARTMENT OF CHEMICAL AND MATERIALS ENGINEERING

Spring 2021 CME E-Newsletter

### *Message from the Chair*

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Dear Friends,

I hope this message find you well. Throughout this pandemic and with great energy and dedication, our faculty and staff have worked diligently in providing an engaging educational experience for our students. We are all looking forward to an in person fall.

In this newsletter, I am pleased to share with you highlights of awards, grants, and other distinguished achievements of our faculty, staff, and students during this challenging time.

Best wishes for a safe, healthy, and productive summer ahead!

Lisa Axe

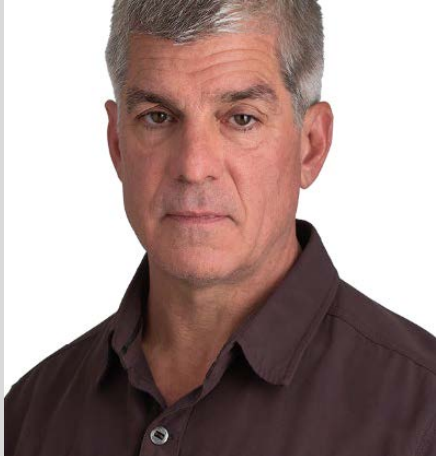
[VISIT CME WEBSITE](#)

### 2021 NSF CAREER Award Recipient



**Murat Guvendiren**, Assistant Professor, received the 2021 NSF CAREER Award from the NSF Division of Materials Research " CAREER: Cell-Instructive Smart Bioinks for Tissue and Organ Printing."

### 2021 Fellow of the Society of Rheology



**David Venerus**, Professor of Chemical and Materials Engineering, was elected the 2021 Fellow of the Society of Rheology for his work in thermal transport and elongational flows, using methods such as rheo-optics and continuous lubricated squeezing flow (CLSF). The SOR Fellowships will be presented at the 92nd Society of Rheology Annual Meeting, to be held October 10-14, 2021 in Bangor, Maine.

[READ MORE](#)

## IEEE Senior Member



**Sagnik Basuray**, Associate Professor of Chemical and Materials Engineering, is the newly elevated IEEE Senior Member. Thank you for your contributions.

## Professor Guvendiren Develops 3D-Printed Biomaterials



Professor **Guvendiren**, Assistant Professor, develops 3D-Printed Biomaterials to create Rejection-Proof Organs.

[READ MORE](#)

## Bringing Lab Courses to Remote Learning Students with Simulation Applications



**Roman Voronov**, Associate Professor of Chemical and Materials engineering, and his students designed 15 easy-to-use simulation applications to help professors at NJIT virtually teach fundamental engineering concepts and lab courses in an engaging way — no matter where the students are based.

[READ MORE](#)

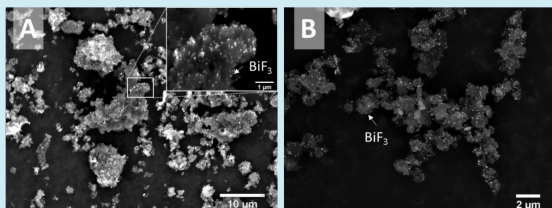
## CME Mentoring Program



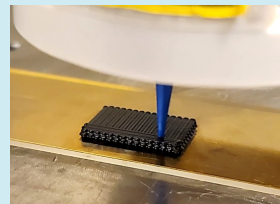
In collaboration with the CME department's industrial advisory board (IAB) and with Professor **Kathleen McEnnis** as the faculty liaison, we have created a mentoring program between CME students and members of the IAB. The program has now completed successful pilot runs and will be implemented for the next academic year. The IAB mentoring program matches CME undergraduate students with members of our IAB to offer mentorship and guidance to the students about a range of subjects including course selection, career pathing, interview preparation, and how to position themselves for success. In the pilot runs, students have found the mentoring program to be very informative and students have developed relationships with their mentor that will last long beyond the program. Many students who participated in the pilot program were able to secure jobs and internships in large part to the advice they received from their mentors. We are excited to begin rolling this program out for the next academic year.

Applications for applying to next year's mentoring program will be out soon!

## FACULTY RESEARCH GRANTS



Congratulations to **Professors Edward Dreizin** and **Mirko Schoenitz** on the continuation on ONR/Project Funding! The ONR-funded project develops new reactive materials for propellants and explosives. These materials combine metal (like aluminum) or metalloid (like boron) fuels with inorganic fluorides as oxidizers and



Congratulations on the continuation of the DOTC OTIA Funding/Project! This effort led jointly by **Professors Dreizin** and **Guvendiren** and supported by the US Army develops additive manufacturing methods for reactive materials. The focus is to achieve high solid load density, maximizing the energy content of the

burn rate modifiers. New materials burn faster than similar thermites and produce gas-phase products, increasing pressure generation. Siva Kumar Valluri is the Ph.D. student lead who works on both synthesis and characterization of these new materials.

printed parts. Graduate students from Prof. Dreizin's group, Dan Hastings and Nikki Rodriguez, develop and characterize feedstock powders. Graduate students from Professor Guvendiren's group, Andrew House and Anna Kuna, develop reactive inks to prepare and characterize the printed items.

- **Sagnik Basuray** awarded an NSF I-Corps grant titled Point-of-Use Microfluidics-Based Electrochemical Platform for Per- and Polyfluoroalkyl Substance (PFAS) Detection in Source Water. In addition, he was awarded (as Co-PI) an Environmental Security Technology Certification Program (ESTCP) grant ER21-5101 titled Field-Scale Demonstration of a Novel Real-Time Sensor for PFAS, PI Sandra Mejia-Avendano from Arcadis US, Inc. He and his PNNL collaborators nominated for R&D 100 Awards for their PFAS Sensor
- **Ecevit Bilgili** awarded a GlaxoSmithKline grant titled Advanced Modeling of Pharmaceutical Wet Stirred Media Milling Process for the Production of Drug Nanosuspensions
- **Rajesh Dave** awarded an NSF STTR (subcontract) Phase I: Designed Peptide Opsonins Against Covid-19 with SAPHTx, Inc (lead organization – **Vivek Kumar's** start-up company).

- **Ed Dreizin** awarded continuation of a U.S. Department of Defense (DTRA) grant titled Metal based reactive materials for rapid destruction of chemical weapon agents
- **Boris Khusid** awarded a NASA grant titled Stability of In-Space Cryogenic Systems
- **Kathleen McEnnis** awarded a New Jersey Healthy Foundation grant titled Mesenchymal Stems Cells as Platinum Nanoparticle Delivery System for Breast Cancer Treatment
- **Laurent Simon** awarded a US Army grant titled A Multiscale Physiologically-Based Pharmacokinetic Model to Simulate Dermal Exposure to Chemical Warfare Agents

## 2021 SALUTE TO ENGINEERING EXCELLENCE AWARD RECIPIENTS

*Congratulations to the CME 2021 Salute to Engineering Award Recipients!*

### **Newark College of Engineering (NCE) Outstanding Senior (Overall)**

**Sydney Sweet**, Otto H. York Department of Chemical and Materials Engineering

### **NCE Departmental Outstanding Senior**

**Sydney Sweet**, Otto H. York Department of Chemical and Materials Engineering

### **Saul K. Fenster Innovation in Design**

**Diego Franco**, Otto H. York Department of Chemical and Materials Engineering

**Christian Kielbowicz**, Otto H. York Department of Chemical and Materials Engineering

### **Madame Mau Outstanding Female Engineering Student**

**Daniela Bushiri**, Otto H. York Department of Chemical and Materials Engineering

### **NCE Excellence in Advising**

**Gordana Obuskovic**, Otto H. York Department of Chemical and Materials Engineering

### **NCE Outstanding Administrative Staff**

**Shawn Yetman**, Otto H. York Department of Chemical and Materials Engineering

### **NCE Outstanding Support Staff**

**Kathy Tomlinson**, Otto H. York Department of Chemical and Materials Engineering



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## HIGHLANDER AWARD WINNERS

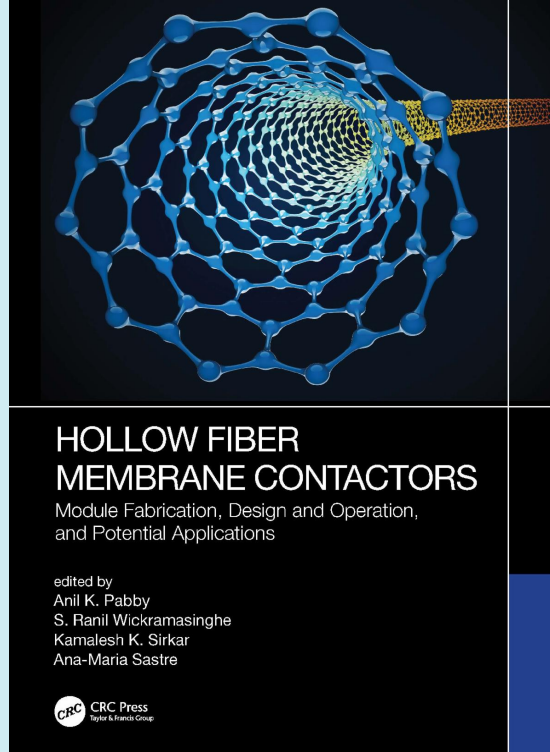
Congratulations to Professor **Roman Voronov** for winning the New Jersey Institute of Technology's Student Organization Advisor of the Year; and, to the NJIT AIChE Student Chapter for winning the Professional Development Program of the 2021 Highlander Awards!



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## RECENT PUBLICATION

Hollow Fiber Membrane Contactors: Module Fabrication, Design and Operation, and Potential Applications co-edited by **Dr. Kamalesh Sirkar**, Distinguished Professor of Chemical and Materials Engineering. This book on hollow fiber contactors explores the most recent developments and milestones in this membrane technology. Top international research teams provide comprehensive, up-to date coverage and case studies detailing hollow fiber membrane applications in biotechnology and chemical, food, and nuclear engineering.



## STUDENT RECOGNITION

### AICHE Student Chapter Placed 1st and 2nd at the 2021 Mid-Atlantic ChemE Car Regionals

Congratulations to our AIChE Student Chapter! They placed 1st in the ChemE Car Poster Competition and 2nd in the ChemE Car Performance Competition at the 2021 Mid-Atlantic Regionals that took place on April 9-11, 2021. This achievement qualifies NJIT for the Nationals that will take place in the Fall of 2021. Thank you to everyone involved for making this happen, especially **Roman Voronov**, AIChE Student Chapter Advisor, the team and its mentor:

Captain: Christian Kielbowicz

Co-Captain: Sabrina Vasquez

Team: Natalie Wilson, Stephany Cabrejos, Monica McEvoy

Mentor: Anh Tong

Safety Judge: Irina Molodetsky

Teaching Assistant: Nikky Rodriguez

Lab Coordinator: Shawn Yetman



*The American Institute of Chemical Engineers  
Presents the*

*Chem-E-Car Poster Competition  
First Place Award*

*To  
New Jersey Institute of Technology*

*2021 Mid-Atlantic Student Regional Conference  
Hosted by University of Maryland, College Park*

*Steph Mante*

*Chair, Student Chapters Committee*

*Demetrius J. Jones*

*President, American Institute of Chemical Engineers*

*The American Institute of Chemical Engineers  
Presents the*

*Chem-E-Car Performance Competition  
Second Place Award*

*Sponsored by AIChE ScaleUp Sponsors*

*To  
New Jersey Institute of Technology*

*2021 Mid-Atlantic Student Regional Conference  
Hosted by University of Maryland, College Park*

*Steph Mante*

*Chair, Student Chapters Committee*

*Demetrius J. Jones*

*President, American Institute of Chemical Engineers*

## 2021 GRADUATE RESEARCH FELLOWSHIP PROGRAM AWARD WINNER

Congratulations to Daniela Bushiri who received the 2021 NSF Graduate Research Fellowship Program Award. Ms. Bushiri is receiving her B.S. in chemical engineering during the May 2021 commencement ceremony. She will pursue her PhD in chemical engineering at Columbia University.



[More NSF GRFP Info](#)

## MAY 2021 COMMENCEMENT CEREMONY

Ogochukwu Enekwizu graduated with a Ph.D. in Chemical Engineering under the advisement of Professor Alexei Khalizov and is a speaker at NJIT's commencement. Dr. Enekwizu was nominated to be the graduate speaker based on her significant accomplishments including outstanding academic performance, innovation in research, and excellent service to the university and broader community. Her research achievements, presentations, and service have been marked by multiple awards including the 2020 APERG award, which provided her with a \$25k scholarship towards her graduate research. Currently, Dr. Enekwizu is a Postdoctoral Fellow in the Environmental and Climate Sciences Department at Brookhaven National Laboratory (<https://www.bnl.gov/staff/oenekwizu>).



**CONGRATULATIONS NJIT CLASS OF 2021!**



### **Commencement Ceremony**

Tuesday, May 18, 2021

5 p.m.

[NJIT.edu](https://www.njit.edu)

**[More information](#)**

