NC STATE UNIVERSITY

Materials Science and Engineering

2022

GRADUATION CEREMONY

James B. Hunt Jr. Library
Room 1103
1070 Partners Way
Raleigh, NC 27606

FRIDAY, MAY 6, 2022
2:00 p.m.

Bachelor of Science in Materials Science and Engineering

Ibrahim Ahmad **
Alexander Almaraz
Garrett Emerson Baucom ***
Tiernan Adaire Baucom **†
Keyshawn Elijah Brown *
Cory Owen Campbell ***
Jerush Christopher **◊
Christopher Francis Davis *
Evan Noble DelVecchio ***
Brandon Michael Donovan *
Tal Dor-El
Travis Elmore **◊
Ahmad James Fathi
Daniel Robert Flint ***
Antonina Marie Godbold *◊
Mitchel Thomas Hayes **
Madison Dorothea Horgan ***
Isa Huryn **
Jordyn Timothy Jacobs **
Kaitlyn Eva Khachadoorian ***◊
Eric William Knowles ***
Abhiram Kondagunta
Jay Kothari **◊
Gwenyth Ann Lincroft **
Marcelo Andres Mateus **
Katarina Elsbeth McGarry **
Ash Chapman McGee *
Murphy Ryan McNeill ***
Michael James Meade **
Nicolas Allen Muecke ***◊
Kanishq Nema **
Je Young Park
Samuel James Poage *
Hannah Ashlyn Presson ***
Paul Ryan Rumple
Daisy Jain Sawyer **
Kathryn Elizabeth Shaffer ***◊
Fate Edward Tolston, III *
Ian Edward Turowski *
Mackenzie Vinson ***
Meghan M. Watkins *
Davis Montgomery Wood **
Zizhi Zhuang

Master of Materials Science and Engineering

Pegah Bagheri
Ian Robert Crawford
Andon Paul Crisp
Kasra Darabi
Zoey Henson DuPree
Mohamed Hesham Elbadry
Alexandra Brooke Eno
Jessica Gee
Keith Bryant Hickey
Ishita Kamboj
Matthew Manning
Christopher Dwight Mize
Fiona Brighid O'Dowd
Bradley Keith Ramsden
Richard Alexander Rhodes
David Lee Richardson
Christine Diane Scanlon
Ghada Shkoukani Al-Qous
James Slota

◊ - University Honors program | † - University Scholars Program
*3.25 to 3.499 GPA - Cum Laude | **3.5 to 3.749 GPA - Magna Cum Laude | ***3.75 to 4.0 GPA - Summa Cum Laude

Graduation Ceremony Program

WELCOME

Prof. Donald Brenner, Kobe Steel Distinguished Professor and Department Head

BACCALAUREATE DEGREE RECOGNITION

Prof. Yaroslava Yingling, Distinguished Professor and Director of Undergraduate Programs

STUDENT COMMENCEMENT SPEAKER

Kaitlyn Eva Khachadoorian

SENIOR DESIGN RECOGNITION

Prof. Maury Balik, Director of MSE Distance Education

UNDERGRADUATE AWARDS

Prof. Yaroslava Yingling

MASTER'S DEGREE RECOGNITION

Prof. Maury Balik

PH.D. RECOGNITION

Prof. Lew Reynolds, Director of Graduate Programs

CLOSING REMARKS

Prof. Donald Brenner

You are cordially invited to a reception at the conclusion of this program on the first floor atrium of Engineering Building I.

FACULTY

Kaveh Ahadi
Aram Amassian
Veronica Augustyn
Maury Balik
Nina Balke
Donald Brenner
Ramón Collazo
Maude Cuchiara
Jerry Cuomo
Wenpei Gao
Rajeev Gupta
Douglas Irving
Jacob Jones
Jag Kasichainula
Carl Koch
Albert Kwansa
Thomas LaBean
Jagdish Narayan
Lew Reynolds
Zlatko Sitar
Franky So
Richard Spontak
Joseph Tracy
Yaroslava Yingling

STAFF

Wendy Cox
Edna Deas
Will Douglas
Elaine Emory Diggs
Niki Jennings
Meghan Johnston
George Martell
Kara Mack
Joseph Matthews
Berni Premachandra
Sara Seltzer
Dana Squire
Hillary Stone
Phillip Strader
Sean West
Maizie Woodall
Kimberly Zak

2021-2022 MSE Senior Design Projects

"Biodegradable Foams"
Cory Campbell, Davis Wood, Ryan Rumple, Zizhi Zhuang
Industry partnership with Hanes. Advised by Colin Holloway and Jacob Jones.

"Characterization of Critical to Quality Structural Parameters in Wood Composites as Related to Finishing and Finishing Quality"
Daniel Flint, Mackenzie Vinson, Jerush Christopher, Travis Ramsey
Industry partnership with Akzo-Nobel. Advised by Heath Saunders and Jag Kasichainula.

"Evaluation of Hyperbranched Acrylates to Reduce the Use of Reactive Diluents in Radiation-Curable Coatings"
Katie Shaffer, Jordyn Jacobs, Daisy Sawyer, Ash McGee
Industry partnership with Akzo-Nobel. Advised by Brent Neal and Rajeev Gupta.

"Exploring Powder Metallurgy Applications for a New Era of Electrified Vehicles"
Rebecca Hunt, Trey Tolston, Jacob Vandermeulen, Tajah Trapier
Industry partnership with Kymera. Advised by Joe Croteau and Franky So.

"Plant Based Polymers for Apparel Applications"
Ashlyn Presson, Murphy McNeill, Chris Davis, Aj Fathi
Industry partnership with Hanes. Advised by Colin Holloway and Aram Amassian.

"Predicting Thermal Conductivity"
Garrett Baucom, Isa Huryn, Brandon Donovan, Keyshawn Brown
Advised by Donald Brenner.

"Materials Research for Coastal Science"
Kaitlyn Khachadoorian, Tiernan Baucom, Michael Meade, Kanishq Nema
Advised by Wenpei Gao.

"Maximizing Strength Through Chemistry for a Solid Solution Strengthened Alloy"
Nicolas Muecke, Travis Elmore, Marcelo Mateus, Ian Turowski
Industry partnership with ATI. Advised by Joe Howell and Carl Koch.

"Memristive Materials for Reservoir Computing Applications"
Evan DelVecchio, Jay Kothari, Sam Poage, Je Park
Advised by Thomas LaBean.

"Syringe Design for Foam Sclerotherapy for Treatment of Varicose Veins"
Lynne Dale, Katarina McGarry, Tal Dor-El, Alex Almaraz
Industry partnership with TriboFilm Research. Advised by Vinay Sakhrani and Jerry Cuomo.

"Vapor Barrier for Flexible Elastomeric Foam Insulation"
Ibrahim Ahmad, Mitch Hayes, Nina Godbold, Abhiram Kondagunta
Industry partnership with Armacell. Advised by Tim Ledden and Richard Spontak.

Master of Nanoengineering

Christopher Edouard Bennett Petree

Sarah Singh Sahota

Drew Edward Williams

Master of Science

Mohammed Abdulrahman Alrizqi, *"The Influences of Different Processing on the Corrosion Performance of Al-5V."* Led by Rajeev Gupta.

Sullivan J. Figurskey, *"Thermal and Thermodynamic Modeling of WC-Co and Mo-Metal Matrix Composites for Electron Beam Powder Bed Fusion."* Led by Elizabeth Dickey and Timothy Horn.

Gail Eagan McColgan, "*Solution-Processed Photodynamic Polymer Coating for Antimicrobial Surfaces."* Led by Aram Amassian.

Doctor of Philosophy

Stephen Amoah, *"Nano- and Micro- Structures for Light Manipulation in Organic Light-Emitting Diodes."* Led by Franky So.

Mathew Hayden Breckenridge, *"Ion Implantation into the III-Nitrides."* Led by Ramón Collazo and Zlatko Sitar.

Qi Dong, *"Applications of Metal-Halide Perovskites in Optoelectronic Devices."* Led by Franky So.

Peter John Feldtmann, "*Thermal Stability of Nanocrystalline Titanium and the Effects of Contamination."* Led by Carl Koch.

Nikolay Frick, "*Neuromorphic Computing with Self-Assembled Resistive Switching Nanocomposites."* Led by Thomas LaBean.

Ming Gao, *"Self-Assembled Three-Dimensional Nanoelectronics Systems with Neuromorphic Network Architectures."* Led by Thomas LaBean.

Yan Guan, "*Structural Characterization of III-Nitride Semiconductors: Defect Control and Strain Management."* Led by Ramón Collazo and Zlatko Sitar.

Alexandra Joy Henriques, *"Quantifying Crystallographic Structural Uncertainty in Electrically Poled Relaxor Ferroelectrics via Bayesian and Rietveld Refinements."* Led by Jacob Jones.

Pratik Joshi, *"Q-carbon, Diamond and Diamond-like Materials for Advanced Biomedical Applications."* Led by Jagdish Narayan and Roger Narayan.

Leila Khalili, "*Exploring the Five Dimensional Crystallography-Property Relationships of Grain Boundaries.*" Led by Srikanth Patala.

Ji Hyun Kim, "*Identification of Common Point Defects in Undoped and Doped $Al_xGa_{1-x}N$.*" Led by Ramón Collazo and Zlatko Sitar.

Younghwan Lee, *"Interface Engineering of Ferroelectric $Hf_{0.5}Zr_{0.5}O_2$ Metal-Ferroelectric-Metal Capacitors."* Led by Jacob Jones.

Lei Lei, "*Organic-Inorganic Hybrid Perovskites on Light-Emitting Diode and Laser Applications.*" Led by Franky So.

James Brooks Mitchell, "*Understanding the Role of Structural Water for High Power Electrochemical Energy Storage in Tungsten Oxide Hydrates.*" Led by Veronica Augustyn.

Thomas Joseph Oweida, *"Predicting the Structure and Self-Assembly of Polyelectrolytes through Molecular Modeling and Machine Learning."* Led by Yaroslava Yingling.

Alexis Leilani Payne, *"A Characterization Platform for 3D Ferroelectric Thin Films."* Led by Jacob Jones.

Aubrey Nance Penn, "*Depth-dependent Chemical and Structural Profiling of Oxide Thin Films with Scanning Transmission Electron Microscopy.*" Led by Divine Kumah and James LeBeau.

Md Mobarak Hossain Polash, "*Understanding and Engineering Spin and Quantum Driven Thermoelectric Materials.*" Led by Daniel Stancil and Daryoosh Vashaee.

Parand Rostami Riley, "*Silicon-doped Diamond-like Carbon, Reduced Graphine Oxide, and Diamond for Biomedical, Chemical, and Physical Applications.*" Led by Jagdish Narayan and Roger Narayan.

Dennis Edward Szymanski, "*Development of III-Nitride Superjunctions.*" Led by Ramón Collazo and Zlatko Sitar.

Yifeng Wu, *"Explorations of High-Entropy Alloys and Perovskite Ceramics from First Principles-Based Multiphysics and Multiscale Simulation."* Led by Douglas Irving.

Kai-Hung Yang, "*Biomaterials for Application as Bio-Interface.*" Led by Roger Narayan.