

MSEC MATTERS

TEXAS STATE UNIVERSITY · ISSUE 1 · JULY 2021



RESEARCH WITH RELEVANCE

With a focus on applied research, industrial outreach and entrepreneurial training, the Materials Science, Engineering, and Commercialization Doctoral Program trains graduate scientists and engineers to perform interdisciplinary research while equipping them to emerge as effective entrepreneurial leaders in the advancement of 21st-century global discovery and innovation.

IN THIS ISSUE

Letter From the Director · P. 2

MSEC Student Club · P. 3

Boot Camp · P. 3

Student Achievements · P. 4

Student Publications · P. 5

MSEC Alumni Focus · P. 7

Faculty Spotlight · P. 8

MSEC NSF Grant · P. 10

New MSEC Faculty · P. 11

MSEC Tenured Faculty · P. 13

Advancing to Candidacy · P. 14

Graduates · P. 14

In Memoriam · P. 15

Letter From the Director

We are pleased to share this inaugural edition of our Materials Science, Engineering and Commercialization (MSEC) newsletter. We plan to publish this newsletter twice a year to keep everyone informed about major achievements, milestones, and changes in our program.

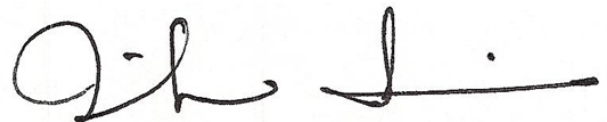
The last year has brought unique challenges to our program.

We have risen to the challenge, teaching and learning remotely and figuring out how to conduct research safely in a pandemic.

This year we created three new MSEC elective courses to better meet the needs of our students. We also added 12 new MSEC faculty members, including Dr. Harlan Beverly, who has taken over the commercialization training aspect of our program. Our students published extensively and were honored with many awards, scholarships, and fellowships: three of our students (Tanjina Ahmed, Isha Desai, and Shubha Malla) won the prestigious PEO International Peace Scholarship. One of our MSEC graduates, Dr. Hyunhwan Kim, recently became a tenure-track faculty member at Texas State. MSEC faculty have also received numerous awards and grants, like Dr. Yoichi Miyahara, who was awarded an NSF CAREER grant. Congratulations to all these MSEC students and faculty for their achievements!

This fall, as we return to in-person learning, we are committed to providing our students an intellectually stimulating educational and research experience, and to providing a healthy, safe, and inclusive community for all.

Sincerely,



Dr. Jennifer Irvin, MSEC Director

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MATERIALS SCIENCE,
ENGINEERING, AND
COMMERCIALIZATION



MSEC STUDENT CLUB

The MSEC Student Club was established in 2018 to explore and promote academic and career issues related to materials science, engineering, entrepreneurship, and leadership. The club has helped those interested in these issues to get to know one another outside the classrooms, laboratories and departments by hosting events, creating special projects and connecting with experts around the world.

Officers for the 2020-2021 academic year are: Shubha Malla, President; Tanjina Ahmed, Vice President; Md Abdul Halim, Treasurer; and Haitao Gong, Secretary.

The MSEC Student Club is still accepting members with NO membership fee! If interested, email Haitao Gong at h_g153@txstate.edu for more information.

ENTREPRENEURIAL BOOT CAMP

Boot Camp II was held May 19th-21st, 2021 and three MSEC students were awarded cash prizes for their start-up company business plans. Kaleb Neptune won first place for his company, Texas Advanced Foundry Solutions, based on his idea of pressurized casting jackets. Samuel Kimmel won second place for his company, GenKim Energy Solutions, based on his idea of safe aqueous based rechargeable batteries. Fatema Zohra won third place for her company, AguaBack Pro, based on her idea of atmospheric water generation for RVs.

Equipping our graduates with the business skills necessary to become entrepreneurs or leaders in industry is a central goal of the MSEC program. This educational goal is supported by the core courses in practical and leadership skills in commercialization and entrepreneurship and other elements dispersed throughout the program. These elements include two separate, three day long, intensive workshops known as Boot Camp I and Boot Camp II. Boot Camp I is completed in the summer prior to beginning the program, typically the last week in August before the start of fall classes. This introductory boot camp outlines fundamental aspects of business and commercialization and equips students with a common language and basic toolkit. Boot Camp II is completed after the end of the following spring semester in May. In this second workshop students present and defend a full business plan for a start-up company.

On the final day, a panel of external judges, including investors and professionals views and ranks the four pitches. The top teams receive cash awards. Many of these teams go on to additional business plan competitions and even launch into successful businesses!

2020-2021 Student Achievements

Adeniji Adetayo

- Fall 2020 College of Science and Engineering Dorothy Coker Research Fellowship Award
- Fall 2020 Doctoral Research Support Fellowship
- 2020-2021 National Society of Black Engineers Scholarship

Tanjina Ahmed

- Fall 2020 Student Government Scholarship
- 2020-2021 PEO International Peace Scholarship
- 2020-2021 Bobcats to Bobcats Scholarship

Zaid Almusaied

- Spring 2021 Top Presentation at International Research Conference for Graduate Students

James Banks

- Spring 2021 Graduate College Scholarship
- Spring 2021 Bounita Favorite Society of Plastics Engineers South Texas Section Endowed Scholarship
- Spring 2021 Junction City Education Together Foundation Scholarship

Isha Desai

- Fall 2020 STAR Showcase Award for High Impact "Cool" Research
- Spring 2021 Second Place Team-Business Plan Competition
- 2020-2021 PEO International Peace Scholarship

Haitao Gong

- 2021 Outstanding MSEC Student Award

Chandan Howlader

- Fall 2020 Graduate College Scholarship
- Fall 2020 Student Government Scholarship

Anupam K.C.

- Spring 2021 Graduate College Scholarship
- Spring 2021 STAR Showcase Award for High Impact "Cool" Research

Shubha Malla

- Fall 2020 Doctoral Research Support Fellowship
- 2020-2021 PEO International Peace Scholarship

John Miracle

- Spring 2021 STAR Showcase Award for Best Virtual Presentation

Bhagyashree Mishra

- Fall 2020 Doctoral Research Support Fellowship

Samuel Kimmel

- Spring 2021 Second Place at MSEC Boot Camp

Kaleb Neptune

- Spring 2021 Keith Mills Scholarship
- Spring 2021 Foundry Education Foundation Scholarship
- Spring 2021 MSEC Boot Camp Winner

Jacob Palmer

- 2020-2021 American Membrane Technology Association & Bureau of Reclamation Fellow

Shamim Reza

- Fall 2020 Doctoral Research Support Fellowship
- Fall 2020 Student Government Scholarship

Md Abdul Ahad Talukder

- 2020-2021 Bobcats to Bobcats Scholarship

Fatema Zohra

- Spring 2021 Third Place at MSEC Boot Camp
- 2020-2021 Doctoral Merit Fellowship

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Tao, J., Luo, X., Qiu, X., & Wang, F. (2021). Data quality assessment of automated pavement cracking measurements in Mississippi. *International Journal of Pavement Research and Technology*, 14(2), 117. <https://doi.org/10.1007/s42947-020-0331-6>

MSEC ALUMNI FOCUS

DR. HYUNHWAN KIM



Dr. Hyunhwan Kim graduated in 2016 and was hired as a lecturer at Texas State University after graduation. He has recently been promoted to Assistant Professor in the Department of Engineering Technology, and is the first MSEC graduate nominated as MSEC doctoral faculty. His research focuses on evaluating asphalt pavement materials performance depending on operating temperatures.

DR. TUGBA YILDIZ

Dr. Tugba Yildiz graduated in 2017, continuing her training at the University of Minnesota and Johns Hopkins University as a Postdoctoral Fellow. She then worked at Kalocyte Inc. as a Formulation Scientist leading liposomal formulations for developing artificial red blood cells. She is now a Formulation Scientist at Senda Biosciences in Cambridge, MA.



DR. MICHAEL OPOKU



Dr. Michael Opoku graduated in 2019 and is the CEO and co-founder of SurgePower Materials, Inc, which was initially developed in MSEC Boot Camp. SurgePower Materials is an eco-friendly startup that produces graphene, a high-quality specialty carbon.

FACULTY SPOTLIGHT

DR. KEISUKE IKEHATA

Dr. Keisuke Ikehata, Assistant Professor in the Ingram School of Engineering, received two grants from the United States Bureau of Reclamation (USBR) for work involving potable water reuse and desalination research.



DR. SHANNON WEIGUM

Dr. Shannon Weigum, Associate Professor in the Department of Biology, was appointed Co-Director of the University Center for Innovation and Entrepreneurship (CIE).

DR. XIAOYU XUE

Dr. Xiaoyu Xue, Assistant Professor in the Department of Chemistry and Biochemistry, has been nominated by the College of Science and Engineering for the 2021 Presidential Award for Excellence in Scholarly/Creative Activity at Texas State University.



DR. NIKOLETA THEODOROPOULOU

Dr. Nikoleta Theodoropoulou, Associate Professor in the Department of Physics, received a DoD Instrumentation Grant from the Office of the Under Secretary of Defense for Research and Engineering.



DR. SEAN KERWIN

Dr. Sean Kerwin, Professor in the Department of Chemistry and Biochemistry, received a National Science Foundation (NSF) grant for "Exploring N-Alkynylazole Cyclizations in Synthesis."

DR. YOICHI MIYAHARA

Dr. Yoichi Miyahara, Assistant Professor in the Department of Physics, received a NSF CAREER grant for research exploring the "Characterization of quantum dot qubits by scannable mechanical resonator."



DR. NAMWON KIM

Dr. Namwon Kim, Assistant Professor in the Department of Manufacturing Engineering, received a Brain Pool grant from the National Research Foundation of Korea and will join the Research Institute of Advanced Materials at Seoul National University.



DR. TODD HUDNALL

Dr. Todd Hudnall, Professor in the Department of Chemistry and Biochemistry, has been named a fellow of the Royal Society of Chemistry (RSC).



Texas State MSEC Faculty Receive

\$3.8M NSF Grant!

A team of MSEC faculty led by Dr. Tania Betancourt have received a six-year National Science Foundation (NSF) Division of Materials Research Partnerships for Research and Education in Materials (PREM) grant of nearly \$4 million to establish the Center for Intelligent Materials Assembly (CIMA).

The PREM CIMA is a research and education partnership between Texas State and The University of Texas at Austin Center for Dynamics and Control of Materials (CDCM), an NSF Materials Research Science and Engineering Center (MRSEC). PREM CIMA will promote recruitment, retention and degree attainment of a diverse student cohort with a pathway into advanced degrees and careers in materials science. PREM CIMA will conduct research in areas of reconfigurable soft materials and nanostructure control to develop advanced materials for applications including biomedicine, water purification, chemical fuel generation from renewable energy sources and nanoelectronics.



Dr. Tania Betancourt
PREM Director



Dr. William Brittain
PREM Co-Director



Dr. Jennifer Irvin
Thrust 1 Director



Dr. Sean Kerwin
Seed Director



Dr. Benjamin Martin
Education Director



Dr. Yoichi Miyahara
Seed Co-Director



Dr. Christopher Rhodes
Thrust 2



Dr. Nikoleta Theodoropoulou
Thrust 2 Director



Dr. Mark Wistey
Thrust 2 Co-Director

Welcome New MSEC Graduate Faculty!



Dr. Harlan Beverly

Adjunct Faculty, MSEC

Lecturer,
MSEC

Ph.D. in Business,
Oklahoma State University



Dr. Liqin Du

Regular Faculty, MSEC

Assistant Professor,
Chemistry and
Biochemistry

Ph.D. in Nutrition,
University of Kentucky



Dr. Anahita Emami

Regular Faculty, MSEC

Assistant Professor,
Manufacturing Engineering

Ph.D. in Engineering
Mechanics, Virginia
Polytechnic Institute and
State University



Dr. Byron Gao

Associate Faculty, MSEC

Associate Professor,
Computer Science

Ph.D. in Computer
Science, Simon Fraser
University



Dr. Hyunhwan Kim

Regular Faculty, MSEC

Assistant Professor,
Engineering Technology

Ph.D. in Materials Science,
Engineering, and
Commercialization, Texas
State University



Dr. Alexander Kornienko

Adjunct Faculty, MSEC

Professor,
Chemistry and
Biochemistry

Ph.D. in Chemistry, Tufts
University



Dr. Karen Lewis

Associate Faculty, MSEC

Associate Professor,
Chemistry and
Biochemistry

Ph.D. in Molecular
Biophysics, University of
Texas Southwestern
Medical Center



Dr. Dip Mahato

Adjunct Faculty, MSEC

Lecturer,
Physics

Ph.D. in Physics, State
University of New York
at Albany



Dr. Ryan Peterson

Associate Faculty, MSEC

Assistant Professor,
Chemistry and
Biochemistry

Ph.D. in Chemistry, John
Hopkins University



Dr. Xijun Shi

Associate Faculty, MSEC

Assistant Professor,
Civil Engineering

Ph.D. in Civil Engineering,
Texas A&M University



Dr. William Stapleton

Associate Faculty, MSEC

Associate Professor,
Electrical Engineering

Ph.D. in Electrical
Engineering, University of
Alabama



Dr. Jelena Tesic

Associate Faculty, MSEC

Assistant Professor,
Computer Science

Ph.D. in Computer
Science, University of
California, Santa Barbara



Congratulations!

MSEC Faculty Receiving Tenure and Promotion



Dr. Yihong Chen

Ingram School of Engineering
Associate Professor to Professor



Dr. Liqin Du

Chemistry/Biochemistry
Assistant Professor to Associate
Professor
Tenure



Dr. Wilhelmus J. Geerts

Physics
Associate Professor to Professor



Dr. Jitendra S. Tate

Ingram School of Engineering
Associate Professor to Professor

Advanced to Candidacy



Adeniji Adetayo



Anival Ayala



Amanda Gregory



Chandan Howlader



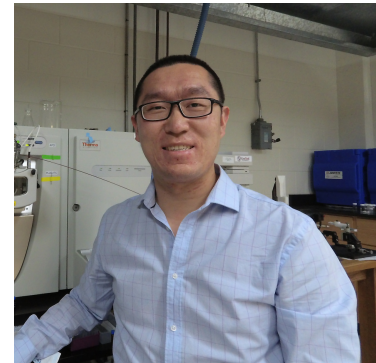
Shubha Malla



Md Shamim Reza



Damilola Runsewe



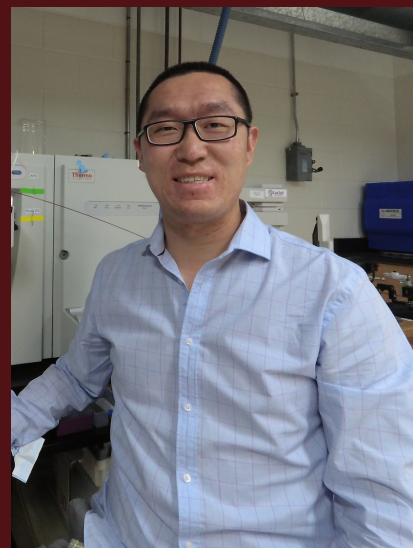
Xu Wang

Congratulations Spring 2021 Graduates!



Dr. Fei Sun

Advised by Dr. Tongdan Jin



Dr. Xu Wang

Advised by Dr. Jennifer Irvin

In Memoriam



Dr. Alexander Zakhidov

February 15, 1981 - June 15, 2021

It is with profound sadness that we inform you of the sudden loss of our friend and colleague, Dr. Alexander "Alex" Zakhidov.

Alex arrived at Texas State University in 2014 as an Assistant Professor in the Department of Physics working in the area of organic semiconductors with applications in photonics. From the beginning, Alex had a major impact on the department and university. He enthusiastically mentored many students, including five MSEC doctoral students. He also served on many MSEC dissertation committees and taught courses in Physics and MSEC. His research attracted external funding from diverse sources, and his group was prolific in publishing their research. His contributions were recognized through awards from the university along with promotion to Associate Professor in 2020.

Prior to arriving at Texas State University, Alex completed his undergraduate and doctoral work at Moscow State University. He carried out research at Cornell University, and as a Humboldt Fellow at Technische Universität in Dresden, and he was a group leader at the Fraunhofer Institute in Dresden. To hear Alex talk about his work in Germany, click [here](#).

Alex shared, with his loving wife and their young daughter, the joys of live music and concerts, travel, books, dry humor, skiing, biking around Austin, barbeque and tacos, the discovery of new micro-breweries, and relaxing to movies.

Alex will be missed for his good nature and enthusiasm for everything he did. At the same time, we are grateful for the few years we enjoyed together as colleagues. The university will celebrate these good memories in Fall Semester 2021 at a time TBA. Please e-mail photos you have to physics@txstate.edu.

The family has posted a [message](#) in honor of Alex. A link will soon be provided for a "Celebration of Life" memorial gathering, organized by the family, to be held in July jointly in Austin and Dallas.

Modified with permission from a write up on the Department of Physics [website](#)



Connect with MSEC



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