



Biomedical Engineering

COLLEGE OF ENGINEERING AND APPLIED SCIENCES

Fall 2023
Newsletter



CHAIR'S MESSAGE



YI-XIAN QIN
Professor and Chair

Greetings from [Stony Brook University BME](#)! The Fall Semester at Stony Brook University (SBU) was filled with delightful celebrations and exciting accomplishments. Stony Brook University maintained its standing atop New York public universities and rose 19 spots in U.S. News and World Report's combined ranking of private and public universities. The BME Department, together with Stony Brook University's School of Business and Center for Biotechnology, launched a new Advanced Graduate Certificate program in Life Science Innovation and Entrepreneurship. New areas of development are unfolding daily, from nano-based tissue engineering to making exploration of outer space safe for mankind. Our faculty and students continued to receive institutional, regional, and national awards and recognitions. We are immensely proud of continued developments at SBU Biomedical Engineering and translation of their impacts in the clinic and beyond.

SBU Ranking

US News and World Report

#1 in New York Public Universities
#26 in Public Universities Nationally
#58 in combined Private and Public Universities
#50 in BME Department Ranking

BME by the Numbers

\$ 460K
Research Expenditure
per Faculty in FY
2022/23

51%
Students
are Women

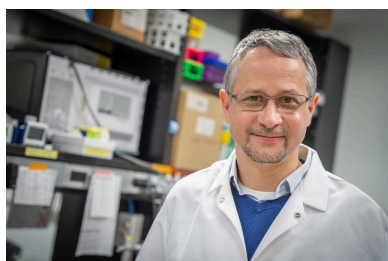
\$ 8M
Research Expenditures
in FY 2022/23

18.9:1
Student:Faculty
Ratio

1/3
Faculty Members are
Women

\$ 76M
New Engineering-
Driven Medicine
Building in construction

RESEARCH & TEACHING



Balázszi Lab Rethinks Protein Inhibitor Approach to Cancer Therapy

GÁBOR BALÁZSI and his team developed a new method to dial up the amount of a metastatic cancer protein, BACH1, found in cells, that enables reassessment of the effectiveness of protein inhibitor therapy in treating disease. Published in Nature Chemical Biology, the approach adjusts BACH1 levels via a synthetic gene circuit placed in human breast metastatic cells by a new genome engineering method.

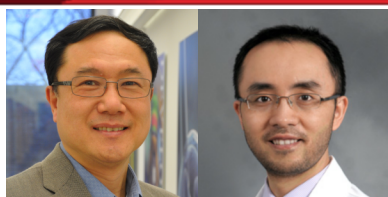
[More>](#)



LiSIE Advanced Graduate Certificate Program Launched

Stony Brook BME, the School of Business, and the Center for Biotechnology co-launched the Advanced Graduate Certificate (AGC) program in Life Sciences Innovation and Entrepreneurship (LiSIE). The LiSIE AGC, directed by **LOUIS PEÑA**, is granted after completing a six course program that prepares students to translate science into therapeutics, diagnostics and/or medical devices. [More>](#)

FACULTY NEWS



Qin and Wang receive NSF Collaborative Research Award

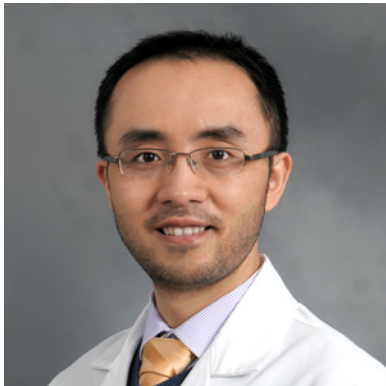
YI-XIAN QIN and **JUN WANG**, along with collaborators Ramana Davuluri and Yuanyuan Yang, received an NSF Innovation in Bioinformatics Award entitled "Molecular signaling in mechanobiology regulation by single-cell analyses using bioinformatics approach." The 3-year, \$898,176 award will be used to develop a single-cell multiplex

in situ tagging (scMIST) system combined with advanced machine learning algorithms to collect data using a common fluorescence microscope, potentially revolutionizing the field of mechanical biology.



Sunar receives NIH grant for development of endoscope for detecting and treating ovarian cancer

ULAS SUNAR received a \$1 million National Cancer Institute award for the development of a light endoscope that can detect and treat minute ovarian cancer tumors. The project, in collaboration with Jonathan F. Lovell (University at Buffalo) and Shashikant Lele (Roswell Park Cancer Institute), combines laser light at a specific color and nano-balloons with chemo-drugs to target and eliminate small cancerous nodules. [More>](#)



Wang awarded NIH R21 grant for decoding kidney diseases

JUN WANG, together with Sandeep Mallipattu (SBU Department of Medicine) and Lloyd Cantley from Yale University, received an NIH R21 grant entitled "Single-cell Cyclic Multiplex in Situ Tagging to Advance Kidney Research". This two-year grant will be used to develop a single-cell spatial multiplex in situ tagging (MIST) technology to investigate the molecular mechanisms of kidney diseases and make tissue-wide map of marker distributions.



Vaska receives industry support for improved PET measurements

PAUL VASKA received a 2-year award from United Imaging Healthcare America, Inc. for a proposal titled "Assessment and Optimization of Quantitative Brain PET Imaging Methods on uMI 550 PET/CT." The funds will support the development of methods to correct for patient head motion using an advanced 3D camera and optimize correction methods provided by the manufacturer of a PET/CT scanner.

STUDENT/ALUMNI NEWS



Tejada featured as September URECA Researcher

ALISHA TEJADA, a BME junior and first-generation college student in Women in Science and Engineering (WISE), was featured as the September 2023 Researcher of the Month by the Undergraduate Research & Creative Activities (URECA) program. Alisha was honored for her work with Wei Yin on clotting in abdominal aortic aneurysms during the Summer 2023 SUNY SOAR undergraduate research program. [More>](#)



Reza receives CMU Forum on BME Outstanding Presentation Award

SYMON REZA, a Ph.D. student supervised by Danny Bluestein and postdoctoral fellow Brandon Kovarovic, received an Outstanding Presentation Award at the 5th Carnegie Mellon Forum on Biomedical Engineering in Pittsburgh, PA. His talk explored novel computational biomechanics approaches in advancing transcatheter aortic valve replacement technology.



Helenek awarded KUHR predoctoral fellowship

CHRISTOPHER HELENEK, a Ph.D student supervised by Dr. Gábor Balázsi, was awarded a predoctoral training fellowship from the New York Consortium for Interdisciplinary Training in Kidney, Urological, and Hematological Research (KUHR). This fellowship aims to foster interdisciplinary collaborations and career development in KUH research. Chris' research utilizes techniques in synthetic biology to quantitatively probe how androgen signaling contributes to the development and progression of benign prostatic hyperplasia. [More>](#)

About Stony Brook BME

The Department of Biomedical Engineering was founded in December 2000, jointly established by the College of Engineering and Applied Sciences (CEAS) and the Renaissance School of Medicine (RSOM) at Stony Brook University. The BME department currently has 22 core and approximately 50 program faculty members. The mission of the Department is to fully integrate the cutting edge of engineering and physical sciences with the state-of-the-art biology to advance human health. The ABET-accredited undergraduate program serves approximately 500 BME majors. The Graduate Program in BME has approximately 100 MS and doctoral students. The BME Department enjoys close collaboration with the facilities and faculty at the newly established Institute for Engineering-Driven Medicine (IEDM), Center for Biotechnology, Brookhaven National Laboratory (BNL), and Cold Spring Harbor Labs (CSHL).

More about Stony Brook BME:

[BME core faculty](#)

[Program faculty](#)

[Research areas](#)

[Undergraduate program](#)

[Ph.D. & M.S. program](#)

[Affiliated labs and Facilities](#)

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Stony Brook University

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