



MSE RESEARCH AREAS
Biomaterials
Electronic & Photonic Materials
Materials for Energy & Environment
Nanomaterials

SPOTLIGHT:
GLOBAL REACH OF
BIOMATERIALS



PILLS

MUHAMMAD ZAMAN (BME, MSE) tackled the counterfeit pill crisis by inventing PharmaChk, a device to test medicine purity.

PAKISTAN, 2011
200 people died from contaminated medicine
NIGERIA, 2007
84 babies died from contaminated medicine
PANAMA, 2006
Widespread illness from contaminated medicine

"IF WOMEN DON'T PIONEER IN THIS AREA, THEN WHO WILL?"
CATHERINE KLAPPERICH



HPV
CATHERINE KLAPPERICH (BME, ME, MSE) produced a small and easy-to-operate HPV diagnostic test.

INDIA
Each year, 74K women die from cervical cancer. HPV is a leading cause of cancer. When HPV is detected early, a percentage of these fatalities can be avoided.

BU DIVISION OF MATERIALS SCIENCE AND ENGINEERING
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BU.EDU/MSE
INVENTING THE MATERIALS OF TOMORROW
& IMPROVING THE MATERIALS OF TODAY

\$115M
FOR KILACHAND CENTER

DIRECTOR OF THE BIOLOGICAL DESIGN CENTER (BDC) CHRISTOPHER CHEN (BME, MSE)
The BDC opened in its new home, the Rajen Kilachand Center for Integrated Life Sciences & Engineering. Chen's team recently developed a 3-D blood vessel-on-a-chip model to understand what happens to blood vessels during injury.

\$20M
NSF CELL-MET ERC GRANT
MSE HEAD DAVID BISHOP (ECE, MSE, PHYSICS, BME, ME) See inside cover

\$3M
FOR LIGHT & BRAIN RESEARCH
THOMAS BIFANO (ME, BME, MSE)
The NSF grant supports the exploration of brain functions by use of light.

\$2.5M
TO FIGHT DEMENTIA
TYRONE PORTER (ME, BME, MSE)
The NIH grant supports the development of a localized drug delivery strategy that would reduce age-related blood vessel damage.

\$1.3M
CENTER FOR SEMICONDUCTOR MODELLING
ENRICO BELLOTTI (ECE, MSE)
The US Army grant establishes a center to develop new simulation and design methodologies for semiconductor materials and devices.

THE COLLEGE OF ENGINEERING DIVISION OF

MATERIALS SCIENCE & ENGINEERING



WHAT'S INSIDE:
\$25M RESEARCH EXPENDITURES
\$20M NSF CELL-MET ERC
ALSO:
MALIKA JEFFRIES-EL (CHEM, MSE) ELECTED AMERICAN CHEMICAL SOCIETY FELLOW. She is 1 of 7 faculty elected fellows this year.

BOSTON UNIVERSITY

MALIKA JEFFRIES-EL



2017/2018
DIVISION
FUNDING

\$121M

ANTICIPATED
FUNDS

\$56M

COMMITTED
FUNDS

\$26M

DOLLARS
RECEIVED

\$25M

GRANT
EXPENDITURES

MSE HISTORY

High demand for advanced materials in the 21st century underscored the need for an interdisciplinary graduate program at BU. In 2008, the Division of Materials Science and Engineering was established under the leadership of Professors Uday Pal, Soumendra Basu, and Theodore Moustakas.

DAVID BISHOP
DIVISION HEAD OF
MATERIALS SCIENCE &
ENGINEERING

\$20M AS ERC DIRECTOR

BISHOP NAMED
DIRECTOR & RECIPIENT
OF \$20M ERC GRANT

A \$20 million grant from NSF established the Engineering Research Center in Cellular Metamaterials (ERC CELL-MET). As director, Bishop will spearhead production of heart tissue to ensure it offers industry and clinical functionality.

INVENTOR

BISHOP NAMED
NATIONAL ACADEMY
OF INVENTORS FELLOW

Bishop holds US patents for 47 micromechanical inventions including the Lambda Router.

FACULTY

49	APPOINTED FACULTY
36	AFFILIATED FACULTY
8K	AVERAGE # CITATIONS
35	AVERAGE H-INDEX
49	TOTAL FELLOWS
55	SOCIETY MEMBERS
4	NATIONAL ACADEMY MEMBERS
25	EARLY CAREER AWARDS, 3 THIS YEAR

SPECIAL PROGRAMS

INCLUSION PROGRAM

The new NSF ERC and the College established a program to increase the presence of women and underrepresented minorities in the field.

LAUNCH ANNUAL EVENT

The inaugural Materials Science Lecture was sponsored by Schlumberger-Doll Research on the topic of *Carbon Based Nanosciences*. It featured Dr. Hongjie Dai.

MATERIALS DAY

XIN ZHANG (ME, ECE, BME, MSE) hosted the annual symposium, addressing *Integrating Metamaterials with Quantum Materials*.

PRESS CLIPPINGS



MARK GRINSTAFF (BME, CHEM, MSE) developed a nanoparticle system to deliver cancer medicine to a patient in one dose.



DOUGLAS HOLMES (ME, MSE) published two papers in *Physical Review Letters* on how soft matter behaves under unstable conditions.



KAMIL EKINCI (ME, MSE) and CHUANHUA DUAN (ME, MSE) created an antibiotic susceptibility test that measures bacteria movement.



JAMES BIRD (ME, MSE) is featured in ASEE's list of 20 high-achieving researchers and educators under 40.

DEGREES

35	PHD AWARDED SINCE '08
83	MS AWARDED SINCE '08
43	MEng AWARDED SINCE '11
3	MS WITH PRACTICE AWARDED SINCE '11
6%	ALL DEGREES AWARDED: AVERAGE GROWTH RATE OVER 6 YEARS
17%	STUDENT POPULATION: AVERAGE GROWTH RATE OVER 4 YEARS

ENERGY

DEGREES AT WORK

Alum Rao Mulpuri (MS '92, PhD '96), CEO of View Dynamic Glass, developed a glass that can be controlled through an app & can reduce energy consumption by about 20%. Mulpuri met his business partner Robert Rozbicki, CTO of View, while a teaching assistant at BU.

