

COLUMBIA UNIVERSITY
THE FU FOUNDATION SCHOOL OF
ENGINEERING AND APPLIED SCIENCE

Celebrating Faculty Excellence

ACCLAIMING THE AWARDS, HONORS,
AND RECOGNITIONS THAT OUR FACULTY
RECEIVED DURING THE PAST YEAR



Excellence

“In our classrooms and laboratories, our faculty, inspired by the scientific breakthroughs of their predecessors, provide the same inspiration for our students as we educate them to be future engineering and applied science leaders who will address some of the most challenging world problems, providing solutions for the betterment of the human condition.”

—FENIOSKY PEÑA-MORA

Excellence



Introduction

Columbia Engineering has a long tradition of excellence going back to the founding of King’s College in 1754 and renewed in the founding of the School in 1864. The faculty members whose accomplishments are highlighted in this booklet are joining the continuum of faculty excellence that has been and continues to be a hallmark of the School

From the first dean, Charles F. Chandler, to Michael I. Pupin and Edwin H. Armstrong, to MPEG-2 patent-holder Dimitris Anastassiou and smart phone display screen guru James Im, our faculty has had a direct impact on how we live our lives today and how we will live them tomorrow.

Please join us in congratulating the newest members to the prestigious circle of outstanding faculty members who have made our School their academic home. We celebrate them as we also recognize the successes of other faculty in past years and anticipate honoring even more faculty in the future.

A handwritten signature in black ink that reads "Feniosky". The signature is fluid and cursive, with a long horizontal stroke at the beginning.

Feniosky Peña-Mora

Dean



GERTRUDE F. NEUMARK

*Howe Professor Emerita of Materials Science and Engineering
and Professor Emerita, Applied Physics and Applied
Mathematics*

HONORARY DOCTOR OF SCIENCE DEGREE,
COLUMBIA UNIVERSITY

for her pioneering work as one of the world's foremost experts on doping wide band-gap semiconductors, creating blue and ultraviolet light-emitting diodes (LEDs) and lasers that have led to improved consumer products, including sharper laser printers, increased DVD storage capacity, advanced traffic lights, mobile-phone screens, and flat-screen televisions

Presidential Early Career Award for Scientists and Engineers (PECASE)



XI CHEN

Associate Professor, Earth and Environmental Engineering

PRESIDENTIAL EARLY CAREER AWARD FOR SCIENTISTS AND ENGINEERS (PECASE) (NATIONAL SCIENCE FOUNDATION NOMINEE)

in recognition of his outstanding research involving mismatch damages in thin-film and nano-scale self-assembly



HELEN H. LU

Associate Professor, Biomedical Engineering

PRESIDENTIAL EARLY CAREER AWARD FOR SCIENTISTS AND ENGINEERS (PECASE) (NATIONAL INSTITUTES OF HEALTH NOMINEE)

in recognition of her use of biomimetic scaffolds to promote chondrocyte-mediated regeneration of the interface between soft tissue and bone

NATIONAL ACADEMY OF ENGINEERING FRONTIERS OF SCIENCE SELECTEE

recognizing young engineers from industry, academia, and government who are performing exceptional engineering research and technical work

Faculty Early Career Development Awards (CAREER)



LATHA VENKATARAMAN

Assistant Professor, Applied Physics and Applied Mathematics

NSF FACULTY EARLY CAREER DEVELOPMENT (CAREER) AWARD to support her research into understanding properties of single molecules attached to metal electrodes

PACKARD FELLOWSHIP

to support her research into understanding fundamental properties of single-molecule electronic devices



JOSÉ BLANCHET

Assistant Professor, Industrial Engineering and Operations Research

NSF FACULTY EARLY CAREER DEVELOPMENT (CAREER) AWARD to support his research to investigate and develop a framework that exploits asymptotic analysis to systematically generate efficient rare-event simulation algorithms for complex stochastic systems



MARCO CASTALDI

Assistant Professor, Earth and Environmental Engineering

NSF FACULTY EARLY CAREER DEVELOPMENT (CAREER) AWARD to support his research to investigate the chemical kinetics and mechanisms of catalytic reactions by combining a high pressure shock and adapting it to study heterogeneous reactions

Faculty Early Career Development Awards (CAREER)



KARTIK CHANDRAN

Assistant Professor, Earth and Environmental Engineering

NSF FACULTY EARLY CAREER DEVELOPMENT (CAREER) AWARD to support his research to characterize gaseous nitric oxide (NO) and nitrous oxide (N₂O) emissions from wastewater treatment plants



V. FAYE MCNEILL

Assistant Professor, Chemical Engineering

NSF FACULTY EARLY CAREER DEVELOPMENT (CAREER) AWARD to support her research to better understand and quantify interactions of trace gases with ice and snow



AH-HYUNG (ALISSA) PARK

Lenfest Earth Institute Assistant Professor of Climate Change, Earth and Environmental Engineering

NSF FACULTY EARLY CAREER DEVELOPMENT (CAREER) AWARD to support her in-depth research into sustainable energy-conversion systems and carbon sequestration



NABIL SIMAAN

Assistant Professor, Mechanical Engineering

NSF FACULTY EARLY CAREER DEVELOPMENT (CAREER) AWARD to support his research to provide the theoretical foundation for modeling and control of flexible robots for intelligent and safe interaction with the anatomy

Recognition/Achievement Awards



SHIH-FU CHANG

Professor and Chair, Electrical Engineering

2009 KIYO TOMIYASU AWARD for pioneering contributions to automated image classification and search



TONY HEINZ

David M. Rickey Professor of Optical Communications, Electrical Engineering

JULIUS SPRINGER PRIZE FOR APPLIED PHYSICS for his pioneering work on the electrical and optical properties of nanoscale carbon materials, including carbon nanotubes



VLADIMIR VAPNIK

Professor, Computer Science, and Senior Research Scientist at the Center for Computational Learning Systems (CCLS)

PARIS KANELAKIS THEORY AND PRACTICE AWARD, ASSOCIATION OF COMPUTATIONAL MACHINERY for developing one of the most frequently used algorithms in machine learning, Support Vector Machines (SVM)



MISCHA SCHWARTZ

Charles Batchelor Professor Emeritus, Electrical Engineering

IEEE EDUCATIONAL ACTIVITIES BOARD (EAB) VICE PRESIDENT'S RECOGNITION AWARD to recognize significant and substantial effect on the practice of engineering and of engineering education

Recognition/Achievement Awards



MARIA CHUDNOVSKY

Associate Professor, Industrial Relations and Operations Research

DELBERT RAY FULKERSON PRIZE

for an outstanding paper in the area of discrete mathematics given jointly by the Mathematical Programming Society (MPS) and the American Mathematical Society (AMS) to encourage mathematical excellence



ADAM SOBEL

Associate Professor, Applied Physics and Applied Mathematics

CLARENCE LEROY MEISINGER AWARD OF THE AMERICAN METEOROLOGICAL SOCIETY COUNCIL

in recognition of research achievement by young, promising atmospheric scientists who have shown outstanding ability

Election to Professional Societies



VAN C. MOW

Stanley Dicker Professor of Biomedical Engineering and Chair, Biomedical Engineering

ASSOCIATE FELLOW OF THE ACADEMY OF SCIENCES FOR THE DEVELOPING WORLD

Associate Fellows status is granted to those who have made significant contributions to the advancement of science in the developing world.



KEREN BERGMAN

Professor, Electrical Engineering

FELLOW, INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

elected to the world's leading professional association for the advancement of technology



STEVEN NOWICK

Professor, Computer Science

FELLOW, INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

elected to the world's leading professional association for the advancement of technology



JULIA HIRSCHBERG

Professor, Computer Science

FELLOW, INTERNATIONAL SPEECH COMMUNICATIONS ASSOCIATION (ISCA)

elected to this organization that promotes, in an international worldwide context, activities and exchanges in all fields related to speech communication science and technology, in recognition of her contributions to speech synthesis and prosody research and her contributions to ISCA as board member and president



ARON PINCZUK

Professor, Applied Physics and Applied Mathematics

FELLOW, AMERICAN ACADEMY OF ARTS AND SCIENCES

for his research at the interface of fundamental physics and novel applications, using optical methods to investigate nanostructures and their fabrication, specializing in the unique properties of semiconductors, and for being a leading experimentalist of inelastic light



CLARK HUNG

Professor, Biomedical Engineering

FELLOW, AMERICAN INSTITUTE OF MEDICAL AND BIOLOGICAL ENGINEERING (AIMBE)

outstanding bioengineers in academia, industry, and government who are leaders in the field and have distinguished themselves through their contributions in research, industrial practice, and/or education



PAUL SAJDA

Associate Professor, Biomedical Engineering

FELLOW, AMERICAN INSTITUTE OF MEDICAL AND BIOLOGICAL ENGINEERING (AIMBE)

outstanding bioengineers in academia, industry, and government who are leaders in the field and have distinguished themselves through their contributions in research, industrial practice, and/or education



Y. LAWRENCE YAO

Professor and Chair, Mechanical Engineering

FELLOW, SOCIETY OF MANUFACTURING ENGINEERS (SME), AND PRESIDENT, NORTH AMERICAN MANUFACTURING RESEARCH INSTITUTION OF SME (NAMRI/SME)

elected a Fellow in the world's leading professional society serving the manufacturing industry



SIU-WAI CHAN

Professor, Applied Physics and Applied Mathematics

FELLOW, AMERICAN CERAMIC SOCIETY BOARD OF DIRECTORS

elected a Fellow in the society that is the leading provider of technical information, meetings, and publications on ceramic science in the world



GORDANA VUNJAK-NOVAKOVIC

Professor, Biomedical Engineering

ELECTED MEMBER, WOMEN IN TECHNOLOGY INTERNATIONAL (WITI) HALL OF FAME

to recognize, honor, and promote the outstanding contributions women make to the scientific and technological communities that improve and evolve our society

ELECTED MEMBER, NEW YORK ACADEMY OF SCIENCES

Membership includes leaders in science, business, academia, and government.

Notable Professional Recognitions



JOHN TAYLOR

Assistant Professor, Civil Engineering and Engineering Mechanics

SLOAN INDUSTRY STUDIES FELLOWSHIP

to support his ground-breaking investigational work, which is increasing the knowledge of complex influences shaping today's industries



CHEE-WEI WONG

Associate Professor, Mechanical Engineering

2009 3M YOUNG FACULTY AWARD

to support his research into sub-wavelength nanostructures



GIL ZUSSMAN

Assistant Professor, Electrical Engineering

YOUNG INVESTIGATOR AWARD, DEFENSE THREAT REDUCTION AGENCY

given to researchers from science and engineering fields to combat the threat posed by weapons of mass destruction; to support his research on the resilience of networks to geographically correlated failures and attacks

Notable Professional Recognitions



DAN ELLIS

Associate Professor, Electrical Engineering

NSF FRONTIERS OF ENGINEERING SELECTEE 2009

NSF FRONTIERS OF ENGINEERING SYMPOSIUM ORGANIZER 2010

recognizing young engineers from industry, academia, and government who are performing exceptional engineering research and technical work



GEORGE DEODATIS

Santiago and Robertina Calatrava Family Professor, Civil Engineering and Engineering Mechanics

ELECTED PRESIDENT, INTERNATIONAL ASSOCIATION FOR STRUCTURAL SAFETY AND RELIABILITY (IASSAR)

head of an organization of engineers and scientists with specialized expertise and interest in structural reliability, safety, and risk analysis and responsible for organizing the International Conferences on Structural Safety and Reliability (ICOSSAR)

THEODORE ZOLI

*Adjunct Professor, Civil Engineering
and Engineering Mechanics*

MACARTHUR FOUNDATION AWARD

given to talented individuals with exceptional creativity, promise for important future advances based on a track record of significant accomplishment, and potential for the fellowship to facilitate subsequent creative work; for leading the design of elegant and enduring bridges around the world and making major technological advances to protect transportation infrastructure in the event of natural and man-made disasters





“Columbia University’s Fu Foundation
School of Engineering and Applied
Science seeks to educate socially
responsible engineering and applied
science leaders whose work results in the
betterment of the human condition,
locally, nationally, and globally.”

—MISSION STATEMENT

Excellence