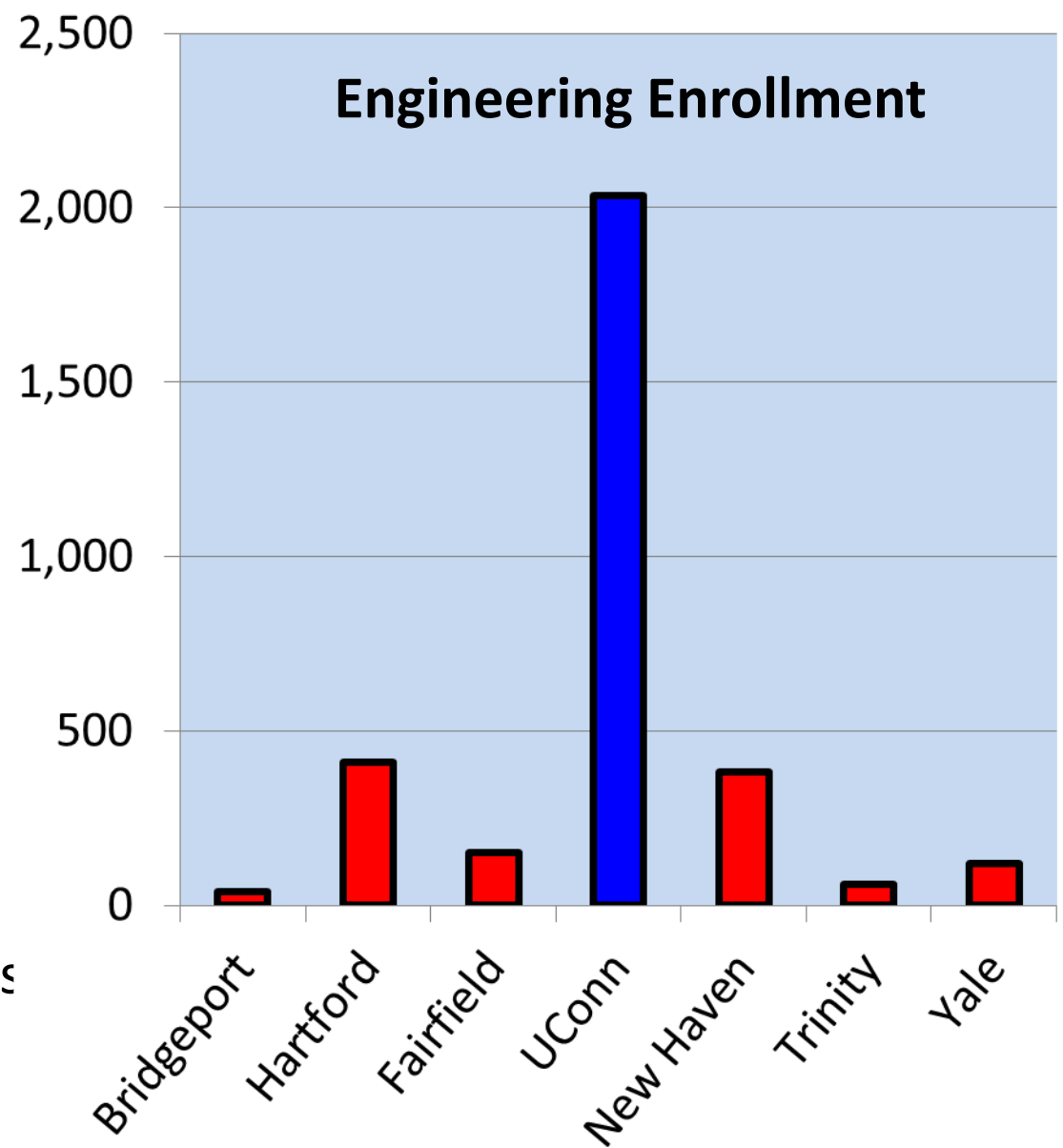






# UConn School of Engineering

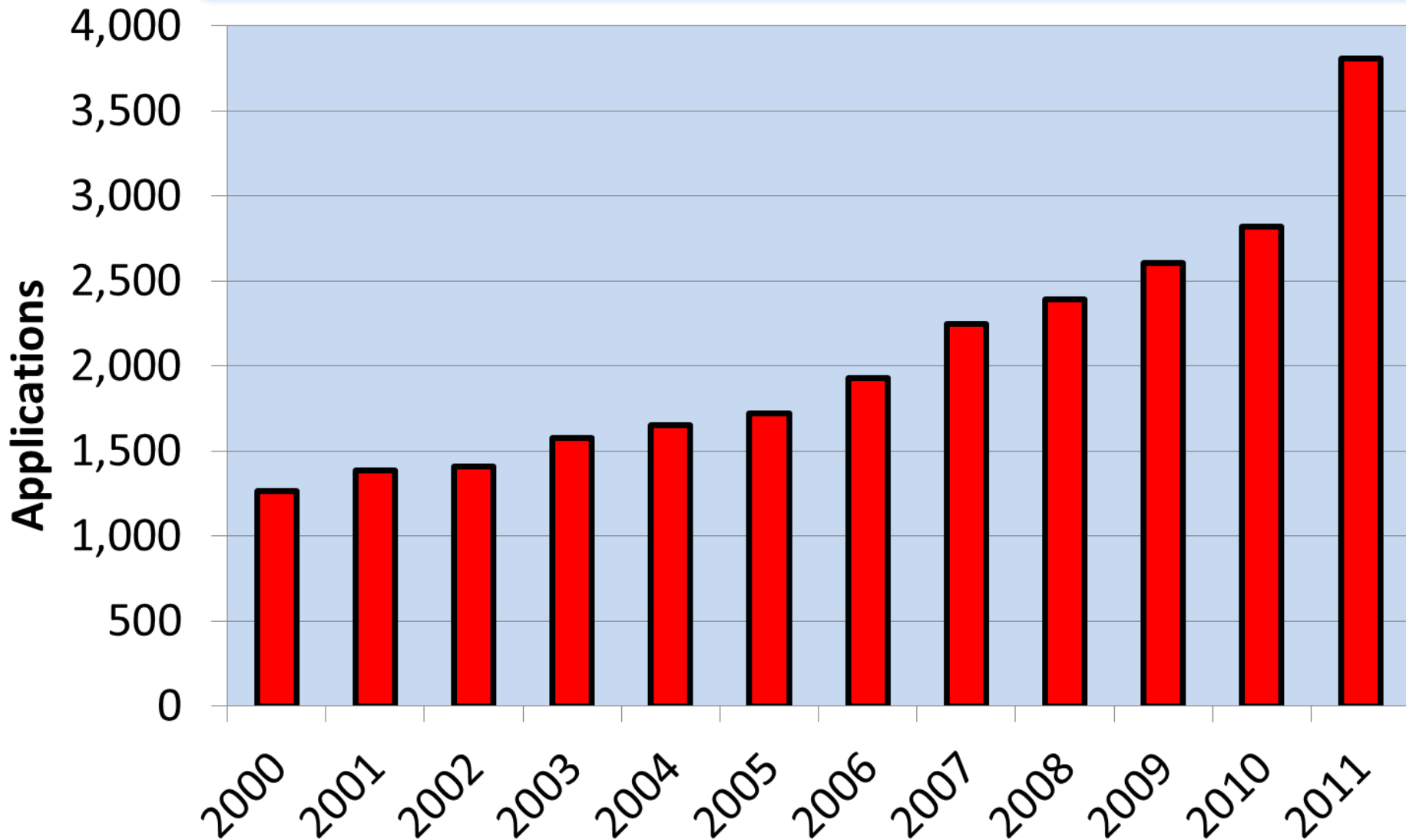
- ❑ Major Programs
  - ❑ Biomedical
  - ❑ Chemical/Materials
  - ❑ Civil/Environmental
  - ❑ Computer Science
  - ❑ Electrical/Computer
  - ❑ Mechanical
- ❑ 128 Faculty
- ❑ Students
  - ❑ 2035 UG Students
    - ❑ 1301 SAT average
    - ❑ 425 BS Degrees
  - ❑ 700 Graduate Students
    - ❑ 100 MS Degrees
    - ❑ 50 PhD Degrees





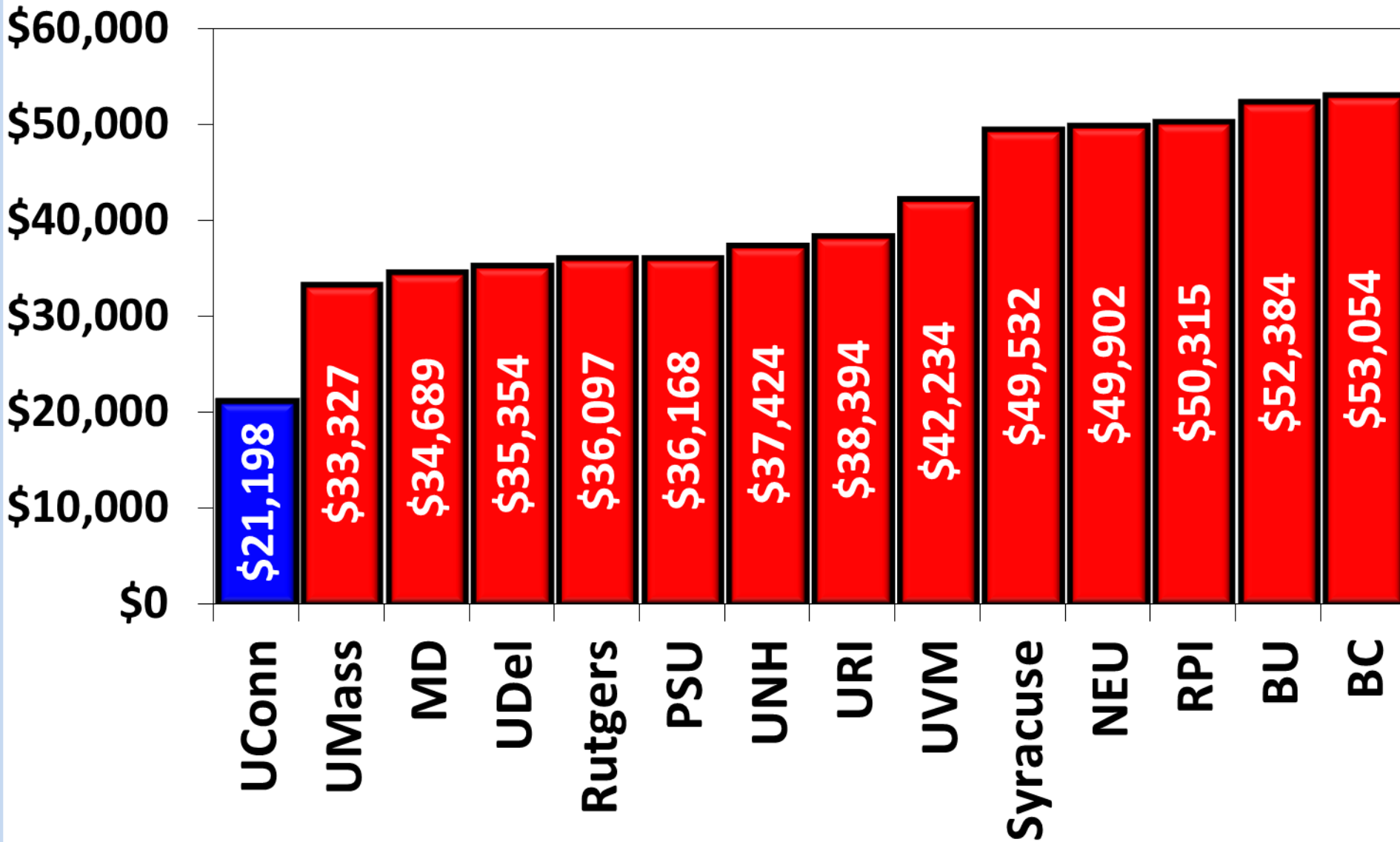
# High Demand for UConn Education

2011 Ave SAT: **1301**



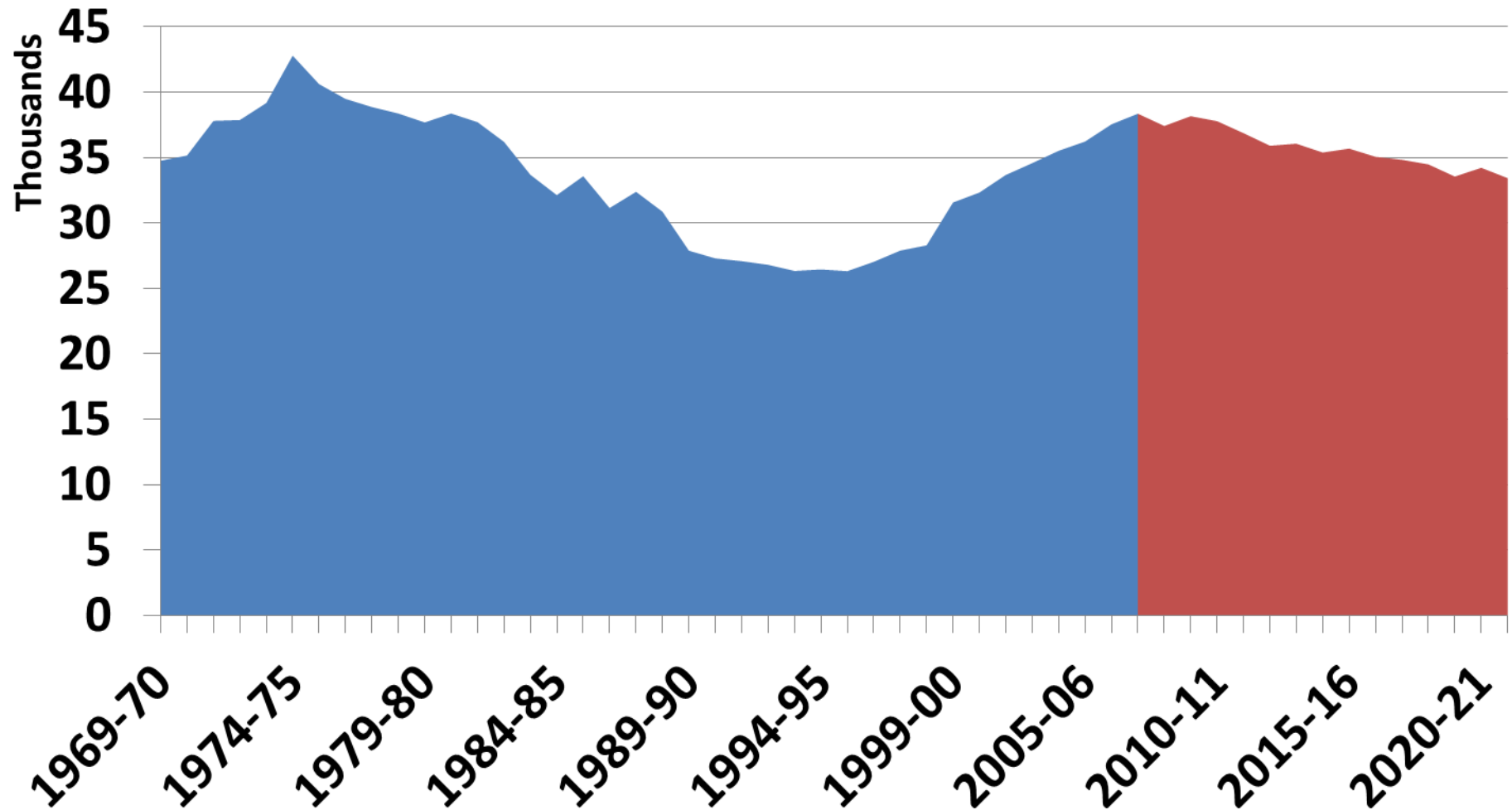


# Excellent Education – Exceptional Value





# Number of High School Graduates





# Education for a Dynamic, Global & Inter-Connected Society

- ❑ Strong Fundamental Foundations
- ❑ Experiential Learning
  - ❑ Senior Design & UG Research
  - ❑ Internships & Co-Op
- ❑ Living and Learning Communities
  - ❑ Honors, Eco-House, WIMSE
- ❑ Engagement Activities
  - ❑ Engineers Without Borders
  - ❑ Study-Abroad
- ❑ \$15M/yr of investment on research training of BS, MS and PhD students





# \$3.3M NSF GK-12 & S-STEM

- ❑ Enfolds faculty, PhD students, CT TECH high school teachers & students in sustainable energy studies
- ❑ PhD students will enhance their broader impact through innovative research and K-12 outreach
- ❑ Teachers and students will learn through laboratory experience and classroom instruction led by PhD students



# 20<sup>th</sup> Century Accomplishments

- Electrification
- Automobile
- Airplane
- Water supply
- Electronics
- Radio & TV
- Agriculture  
Mechanization
- Computers
- Telephone
- AC and Refrigeration
- Highways
- Spacecraft
- Internet
- Imaging
- Household  
appliances
- Health technologies
- Petrochemical tech
- Lasers
- Nuclear technologies
- High-performance  
Mat'ls





# 21<sup>st</sup> Century Opportunities

- ❑ **Make** solar energy economical
- ❑ **Provide** energy from fusion
- ❑ **Develop** carbon sequestration methods
- ❑ **Manage** the nitrogen cycle
- ❑ **Provide** access to clean water
- ❑ **Restore** urban infrastructure
- ❑ **Advance** health informatics



- ❑ **Engineer** better medicine
- ❑ **Reverse engineer** the brain
- ❑ **Prevent** nuclear terror
- ❑ **Secure** cyberspace
- ❑ **Enhance** virtual reality
- ❑ **Advance** personal learning
- ❑ **Engineer** the tools of scientific discovery





# Manufacturing in 1969



Photo Courtesy of Dr. A. Epstein



# Manufacturing in 2011

U.S.	CANADA	AUSTRALIA	JAPAN	KOREA	EUROPE
Boeing	Boeing	Boeing	Kawasaki	KAL-ASD	Messier-Dowty
Spirit	Messier-Dowty		Mitsubishi		Rolls-Royce
Vought			Fuji		Latecoere
GE					Alenia
Goodrich					Saab

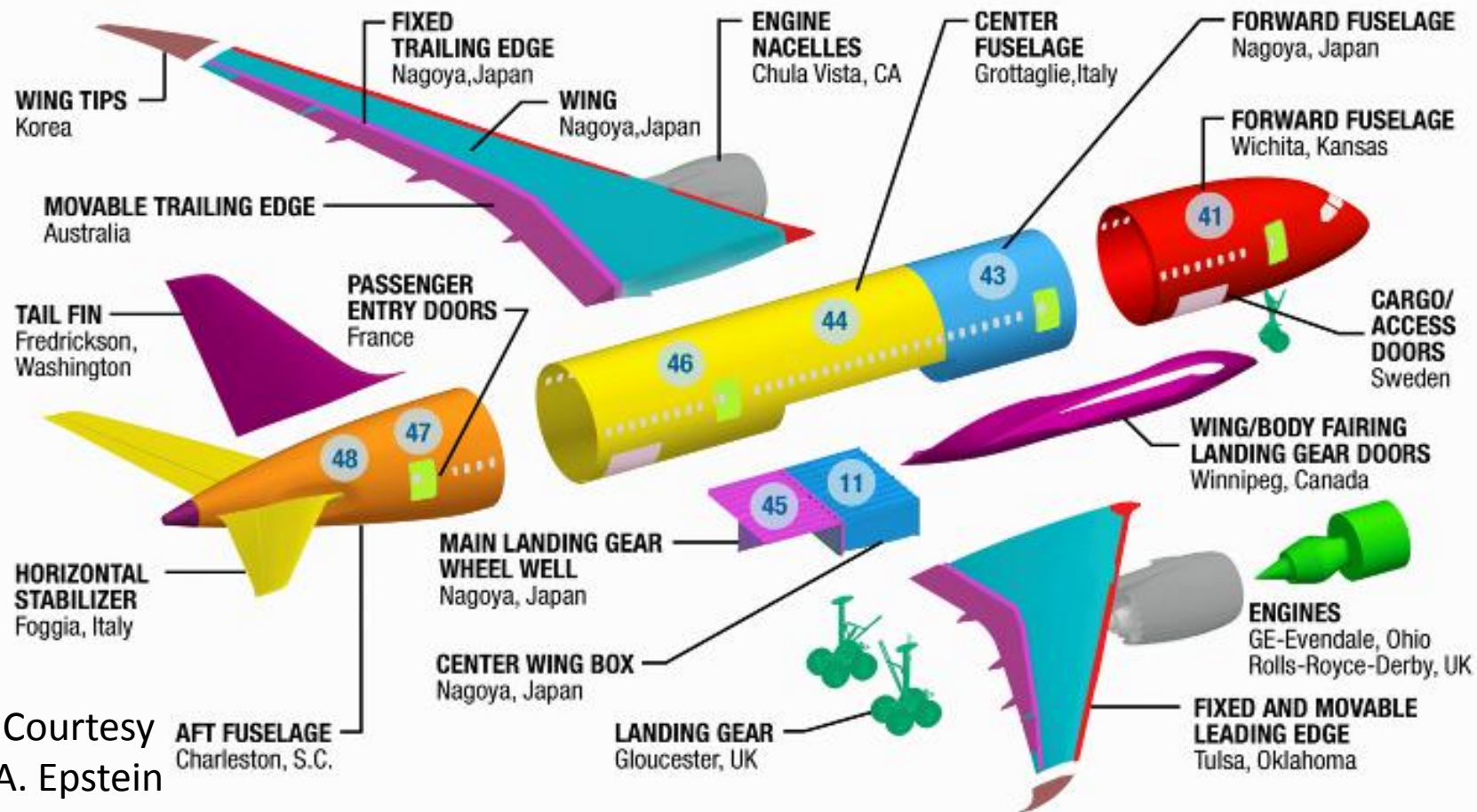
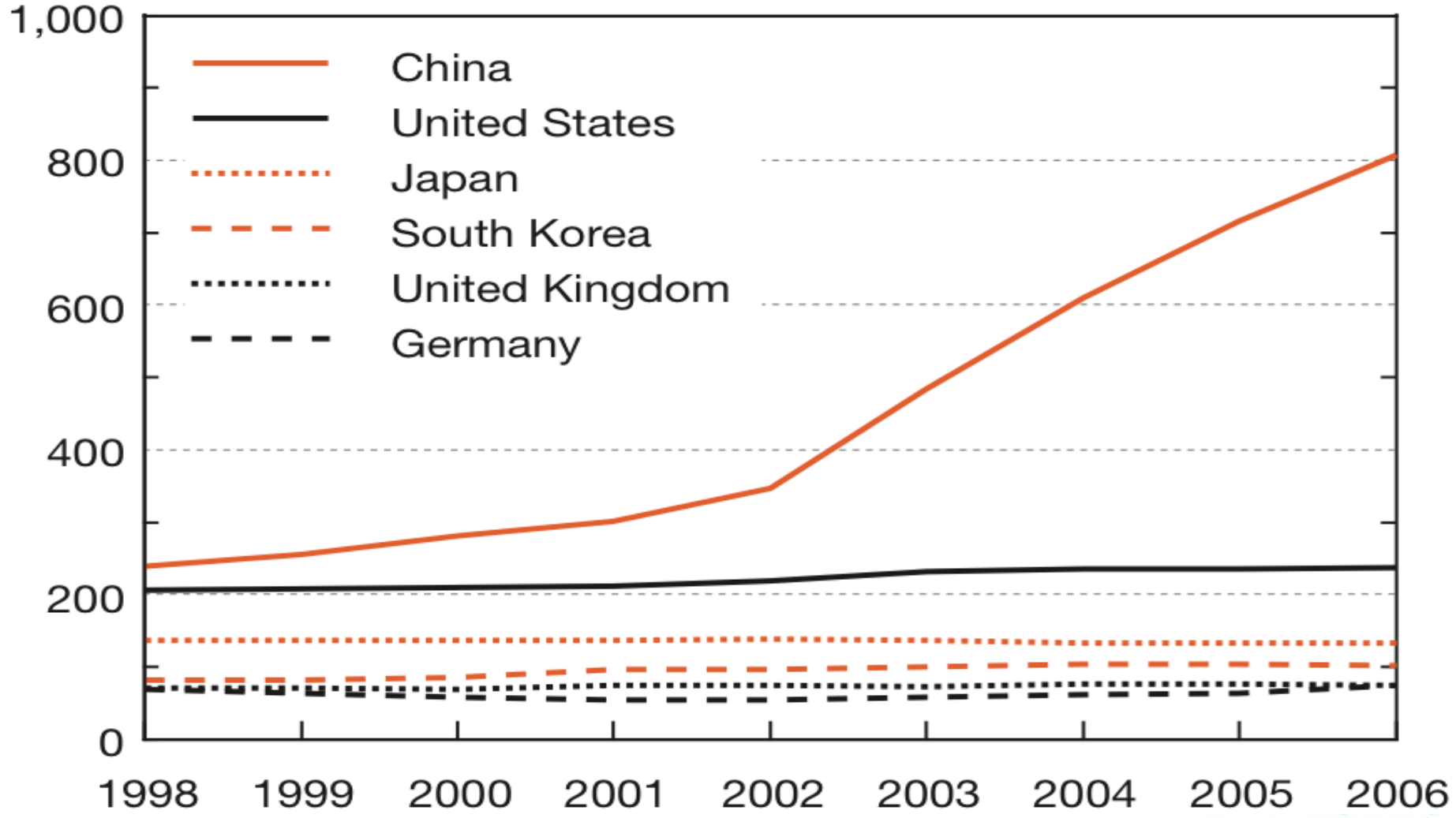


Photo Courtesy of Dr. A. Epstein



# Engineering & Science Degrees

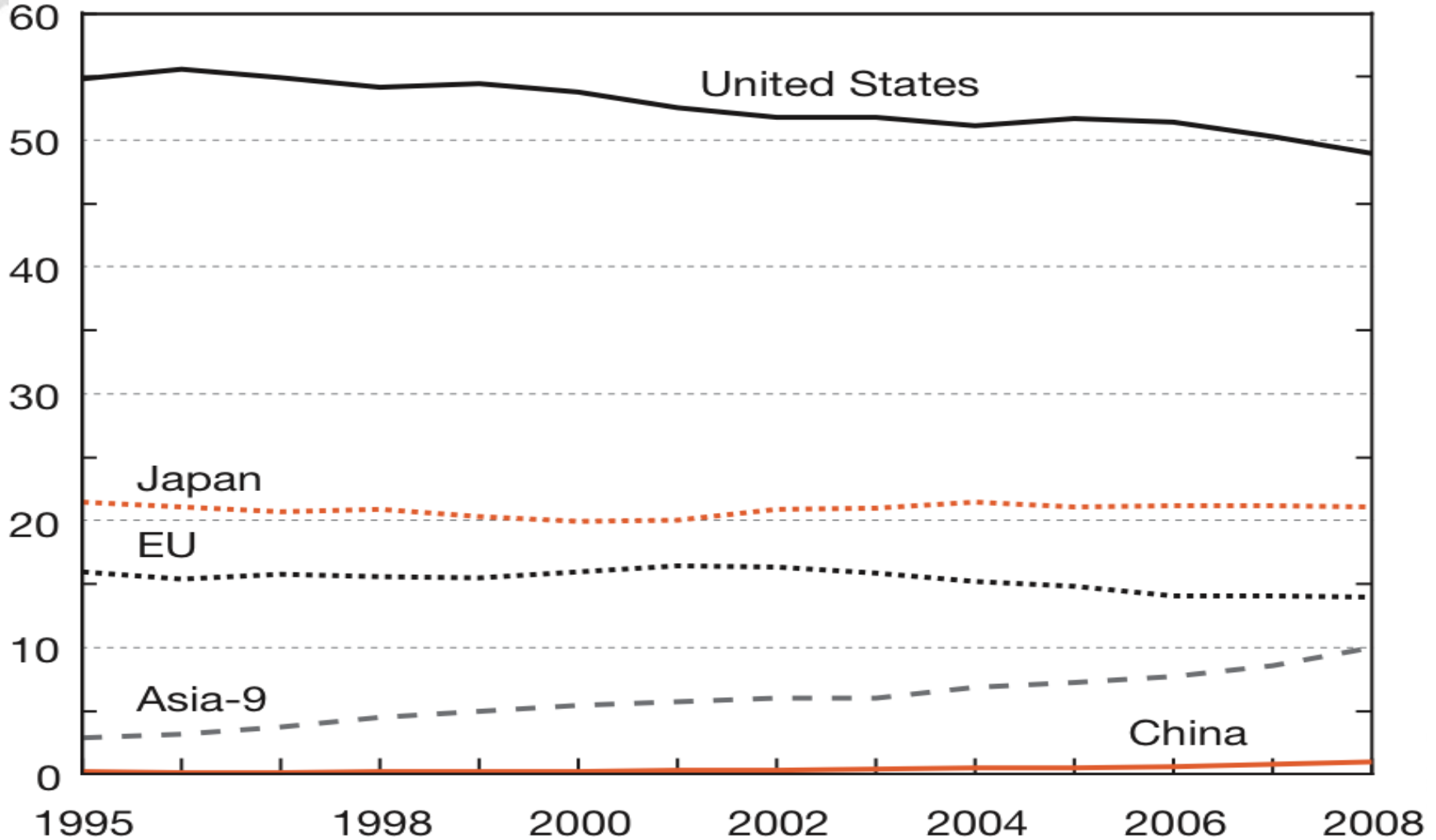
Thousands





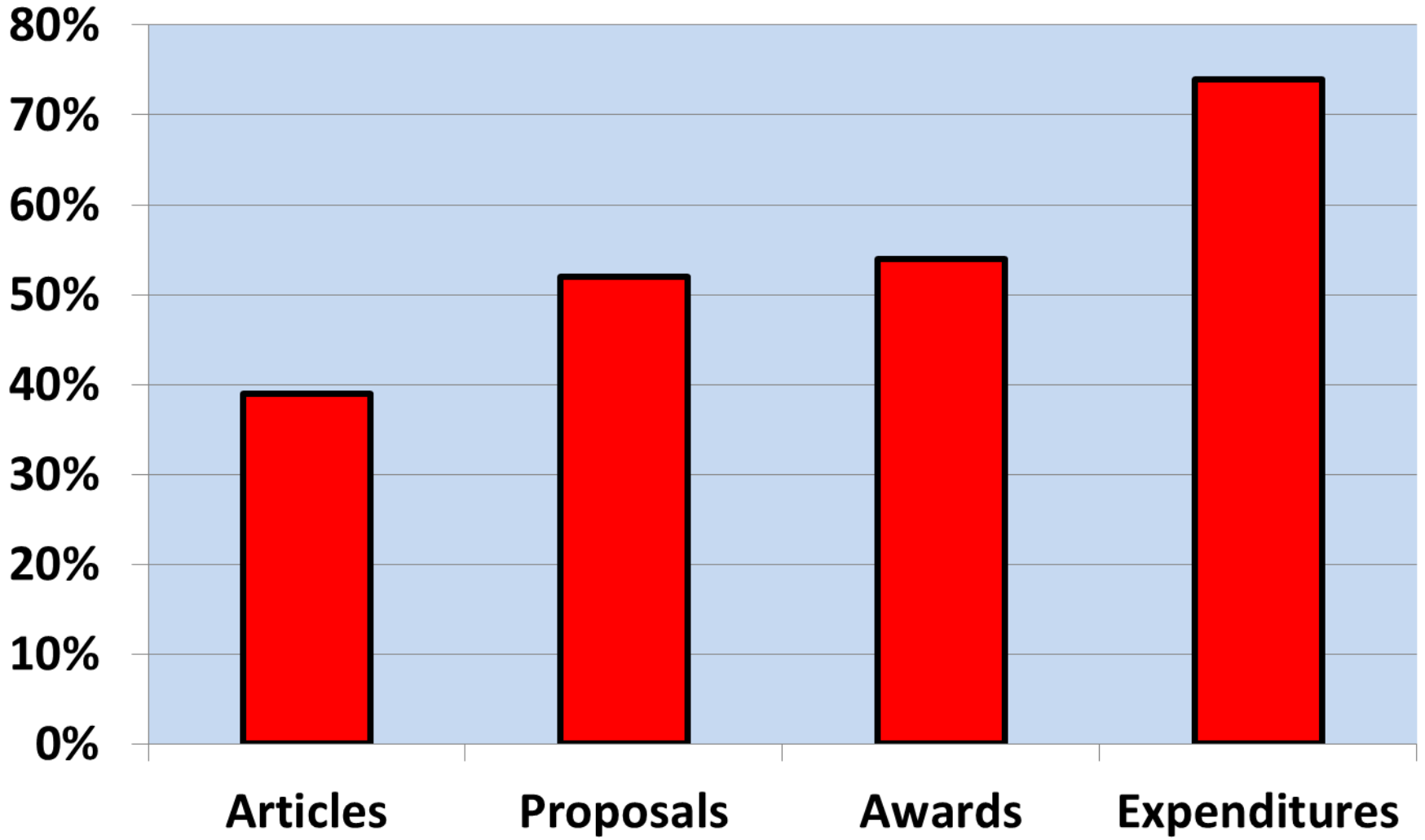
# U.S. Patents

Percent





# Research Performance (2008 to 2011)





# Innovation Partnership

Activity	Metrics
Patents ( <i>cumulative</i> )	<b>240</b>
Disclosures (09-10)	<b>76</b>
Patents (09-10)	<b>28</b>
Industry Scholarship Sponsors	<b>114</b>
Industry Collaborations	<b>115</b>
Industry Senior Design Projects	<b>107</b>
NSF GOALI Projects	<b>10</b>





# Catalyzing Research with Industry

- ❑ **NSF GOALI** enables industry engineers, students and faculty to pursue R&D collaborations
  - ❑ GM – Chassis Systems: Dr. Pattipati, \$350K
  - ❑ ORNL/NASA –Plasma Deposition: Dr. Renfro, \$550K
  - ❑ Teleflex - Multi-functional Composites: Dr. Wei, \$402K
  - ❑ IBM - Silicon MOSFETs: Dr. Gokirmak, \$255K
  - ❑ AMD - Defects in Nanometer IC: Dr. Tehranipoor, \$165K
  - ❑ GE - Propagation in Periodic Structures: Dr. Tang, \$143K
  - ❑ GM - Sensing System for Stamping: Dr. Gao, \$57K
  - ❑ DYNISCO - Injection Molding of Plastics: Dr. Gao, \$268K
  - ❑ Xradia - Ohmic Polarization in SOFCs: Dr. Chiu, \$96K
  - ❑ OaSYS – Osmotic Water Treatment: Dr. Jeff McCutcheon, \$350K



# Industry Center of Excellence

- ❑ Pratt & Whitney, Hamilton-Sundstrand:
  - ❑ Relevant research activities
  - ❑ Leverage funds for federal grants
  - ❑ UG and graduate student engagement with industry
- ❑ Engineering Ambassadors program to train women and URM students as mentors in
  - ❑ Communication skills
  - ❑ Leadership skills
  - ❑ Community outreach

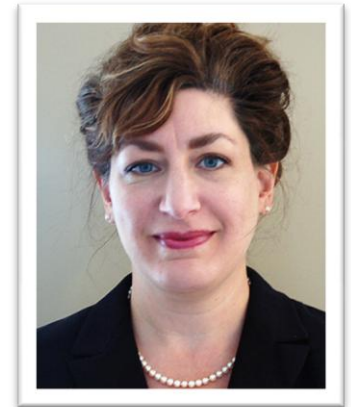


Projects
<i>Ceramic Coatings</i>
<i>Alternative Fuels</i>
<i>Ceramic Composites</i>
<i>Bluff-Body Stability</i>
<i>Tomog Visualization</i>
<i>Fluid Air Visualization</i>
<i>Adaptive Control</i>
<i>Single Crystal Materials</i>
<i>Oxygen Generation</i>
<i>Composites</i>
<i>Air Management</i>



# TECH Park & Engineering Building

- ❑ President Herbst: Industry Partnership will be central
- ❑ TECH Park Building
  - ❑ \$122M facility to be completed in 2014
  - ❑ \$40M of Advanced Instrumentation
- ❑ Engineering Building
  - ❑ \$61M facility to be completed in 2015
- ❑ Emphasis on Convergence
  - ❑ Advanced Product Development
  - ❑ Nano-Biomedical
  - ❑ Advanced Materials
  - ❑ Cyber-Physical Systems



A large orange circular graphic with a white lightning bolt symbol inside. A dark blue banner with white text is superimposed over the circle.

**UNIVERSITY OF CONNECTICUT  
ENGINEERING**