SUNY Poly in a New Era

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SUNY Poly in a New Era – Overview

• SUNY Poly is recognized as a global leader in advanced electronics Research and Development, and is poised for continued success

• The cumulative impact of SUNY Poly is more than $15B in R&D investments in ~20 years

• Collaborative research is a model vital to the industry. SUNY Poly has served in that role, and is rededicated to its success

• SUNY Poly’s current research programs are aligned to drive ‘what’s next’ in this exciting new era
Combined Industry and Academic Mission

- ~3000 graduate and undergrad students
- Interdisciplinary academic research
- Industry R&D partnerships statewide
- Track record of CNSE graduates hired by research labs in industry & academia
SUNY Poly is NOT a Traditional University:

- Public and private investments in excess of $15B with >$150 M in annual sponsored R&D
- Over 3,500 jobs on site (2,700 from industrial partners)
- > 1,670,000 sq.ft. of cutting-edge facilities, 120,000 sq.ft. of industry compliant 300mm cleanrooms
- More than 300 industry partners including electronics, energy, defense & biohealth

CNBC ranks New York “first in innovation among all U.S. states”
SUNY Poly Timeline  1997 - present

08/98  National Focus Center Consortium ($10M/year)
07/02  International SEMATECH North ($320M/5 years)
06/97  NanoFab 200 Building ($16.5M)
04/01  Nanoelectronics Center of Excellence ($150M)

04/04  IBM-Albany CSR ($450M)
01/05  GF – Luther Forest Plant ($4.6B)
01/05  INVENT ($600M/7 years)
04/04  College of Nanoscale Science & Engineering Formed
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06/06  $1.5B Packaging R&D & MFG
07/08  International SEMATECH Manufacturing Initiative
07/08  U.S. DOE PVMC Grant ($57.5M)
02/10  M+W Group relocates its North American Headquarters
05/07  International Sematech / NYS Agreement ($300M/5 years)

10/10  International SEMATECH Manufacturing Consortium ($500M/5 years)
11/02  Tokyo Electron Ltd. (TEL) Technology Center America
01/05  ASML R&D Center ($400M/5 years)
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07/15  Danfoss Silicon Power Utica Quad-C ($100M)
04/11  American Institute for Manufacturing Integrated Photonics ($600M/5 years)
03/17  American Institute for Manufacturing Integrated Photonics ($600M/5 years)
Key Relationships - IBM Alliance Development

- The IBM Alliance produced computer chips with 7 nm transistors - the smallest ever made by the industry - in 2015.

- The new chips were made entirely at the 300 mm wafer manufacturing facilities at SUNY Poly.

Source: timesunion.com, July 10, 2015
Key Relationships - IBM Alliance Development

- The IBM Alliance recently unveiled the world's first 5nm silicon chip. Each chip contains 30 billion stacked nanowire transistors, allowing a 40% performance boost.

- The new chips were also made at the SUNY Poly 300 mm wafer facility.

Source: forbes.com, June 5, 2017
Current and Future Research and Development at SUNY Poly
SUNY Poly is Driving the New Era of Nanoelectronics

• The American Institute for Manufacturing Integrated Photonics (AIM Photonics) is building global manufacturing leadership in photonics integrated circuit technology
The New York Power Electronics Manufacturing Consortium (NY-PEMC) is producing the next generation of power electronics at SUNY Poly’s 150 mm SiC fab in partnership with GE.
SUNY Poly is Driving the New Era of Nanoelectronics

• The NY-PEMC Packaging Center in Utica is a partnership with Danfoss Silicon Power for the packaging of modules and power blocks for industrial, automotive, and renewable applications

• Building / fab fit out early 2018

Danfoss power electronic drives and cooling products

Packaging Center at the Computer Chip Commercialization Center (Quad-C) in Utica, NY
SUNY Poly - What’s Next?

- Microprocessors, ASICs, Mixed signal, MEMs, PEMC
- Nanoscience for health and medicine
- Bio-manufacturing/Biomedical devices
- Integrated photonics from devices to systems
- Micro hybrid packaging
- Emerging technologies and applications
- Trusted federal foundry
SUNY Poly in a New Era - Summary

• Collaborative research continues to enable the Capital Region’s growing technology industry

• SUNY Poly’s current research programs are aligned to drive ‘what’s next’ in a new era for electronics, communications, and energy systems

• SUNY Poly is working with its key partners and stakeholders including SUNY System Administration and other campuses, the Research Foundation, and New York State/Empire State Development.
Thank You