



## SUNY Poly and GLOBALFOUNDRIES Announce New \$500M R&D Program in Albany To Accelerate Next Generation Chip Technology

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Arrival of Second Cutting Edge EUV Lithography Tool Launches New Patterning Center That Will Generate Over 100 New High Tech Jobs at SUNY Poly

ALBANY, NY – In support of Governor Andrew M. Cuomo's commitment to maintaining New York State's global leadership in nanotechnology research and development, SUNY Polytechnic Institute (SUNY Poly) and GLOBALFOUNDRIES today announced the establishment of a new Advanced Patterning and Productivity Center (APPC), which will be located at the Colleges of Nanoscale Science and Engineering (CNSE) in Albany, N.Y.

The \$500 million, 5-year program will accelerate the introduction of Extreme Ultraviolet (EUV) lithography technologies into manufacturing. The center is anchored by a network of international chipmakers and material and equipment suppliers, including IBM and Tokyo Electron, and will generate 100 jobs.

"This advanced new partnership between SUNY Poly and GF demonstrates how Governor Cuomo's strategic investments in SUNY are bolstering the system's research capacity, leveraging private dollars, and creating exciting new opportunities at our campuses for students and faculty," said SUNY Chancellor Nancy L. Zimpher. "SUNY Poly's nanotechnology expertise coupled with the governor's innovative public-private partnership model has positioned New York as a global leader in computer chip research, development, and manufacturing. SUNY System Administration strongly applauds Dr. Kaloyeros for his leadership in bringing the Advanced Patterning and Productivity Center to Albany."

"Today's announcement is a direct result of Governor Cuomo's innovation driven economic development model. His strategic investments supporting the state's world class nanotechnology infrastructure and workforce have made us uniquely suited to host the new APPC, which will enable the continuation of Moore's Law and unlock new capabilities and opportunities for the entire semiconductor industry," said Dr. Alain Kaloyeros, President and CEO of SUNY Polytechnic Institute. "In partnership with GF, IBM and Tokyo Electron, we will leverage our combined expertise and technological capabilities to meet the critical needs of the industry and advance the introduction of this complex technology."

"GF is committed to an aggressive research roadmap that continually pushes the limits of semiconductor technology. With the recent acquisition of IBM Microelectronics, GF has gained direct access to IBM's continued investment in world-class semiconductor research and has significantly enhanced its ability to develop leading-edge technologies," said Dr. Gary Patton, CTO and Senior Vice President of R&D at GF. "Together with SUNY Poly, the new center will improve our capabilities and position us to advance our process geometries at 7nm and beyond."

EUV lithography is a next-generation semiconductor manufacturing technique that produces short wavelengths (14-nanometers and below) of light to create minuscule patterns on integrated circuits. The technology is critical to achieve the cost, performance, and power improvements needed to meet the industry's anticipated demands in cloud computing, Big Data, mobile devices, and other emerging technologies.

The APPC will tackle the challenges associated with commercializing EUV lithography technology. A key component of the center will be the installation of the ASML NXE:3300 EUV scanner, a state-of-the-art tool for the development and manufacturing of semiconductor process technologies at 7nm and beyond. This installation follows the installation of the IBM supported ASML NXE:3300B EUV scanner already in place at SUNY Poly.

The center aims to bring mask and materials suppliers together to extend the capabilities of EUV lithography through exploring fundamental aspects of the patterning process. Other projects will be focused on enhancing productivity, in preparation for implementing EUV lithography in the manufacturing of leading-edge products in GF's production facility in Malta, NY.

Through the APPC, members will have access to SUNY Poly's patterning infrastructure, which includes state-of-the-art film deposition and etch capability, leading-edge patterning systems, EUV mask infrastructure, and world-class EUV imaging capabilities.

"IBM is committed to providing high-performance computing solutions for the cloud and cognitive era through continued leadership and collaboration in semiconductor technology research," said Mukesh Khare, Vice President at IBM Research. "SUNY Poly CNSE's investment in the APPC and new ASML tool will accelerate maturity of EUV technology towards manufacturing, which will allow us to build on the innovations that enabled an IBM Research-led alliance to deliver the industry's first 7nm test chip demonstration earlier this year. Through the vision and leadership of the Governor and CSNE, leading-edge partnerships such as this one are possible."

"EUV technology has emerged from R&D and the new center will meet the rising demand to commercialize this technology and

put it in the hands of end users,” said Gishi Chung, SVP & GM, Head of SPE Development Division from TEL. “TEL is proud to be partnering with SUNY Poly at its Albany NanoTech Complex as we continue our work with fellow industry leaders to advance cutting edge innovations in semiconductor process technology.”

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SUNY Polytechnic Institute. SUNY Polytechnic Institute (SUNY Poly) is New York’s globally recognized, high-tech educational ecosystem, formed from the merger of the SUNY College of Nanoscale Science and Engineering and SUNY Institute of Technology. SUNY Poly offers undergraduate and graduate degrees in the emerging disciplines of nanoscience and nanoengineering, as well as cutting-edge nanobioscience and nanoeconomics programs at its Albany location and undergraduate and graduate degrees in technology, including engineering, cybersecurity, computer science, and the engineering technologies; professional studies, including business, communication, and nursing; and arts and sciences, including natural sciences, mathematics, humanities, and social sciences at its Utica/Rome location. Thriving athletic, recreational, and cultural programs, events, and activities complement the campus experience. As the world’s most advanced, university-driven research enterprise, SUNY Poly boasts more than \$43 billion in high-tech investments, over 300 corporate partners, and maintains a statewide footprint. The 1.3 million-square-foot Albany NanoTech megaplex is home to more than 4,000 scientists, researchers, engineers, students, faculty, and staff, in addition to Tech Valley High School. SUNY Poly operates the Smart Cities Technology Innovation Center (SCiTI) at Kiernan Plaza in Albany, the Solar Energy Development Center in Halfmoon, the Children’s Museum of Science and Technology (CMOST) in Troy, the Central New York Hub for Emerging Nano Industries in Syracuse, the Smart System Technology and Commercialization Center (STC) in Canandaigua, and the Photovoltaic Manufacturing and Technology Development Facility in Rochester where SUNY Poly also leads the American Institute for Manufacturing Integrated Photonics. SUNY Poly founded and manages the Computer Chip Commercialization Center (Quad-C) at its Utica location and also manages the \$500 million New York Power Electronics Manufacturing Consortium, with nodes in Albany and Rochester, as well as the Buffalo High-Tech Manufacturing Innovation Hub at RiverBend, Buffalo Information Technologies Innovation and Commercialization Hub, and Buffalo Medical Innovation and Commercialization Hub. For information visit [www.sunycnse.com](http://www.sunycnse.com) and [www.sunypoly.edu](http://www.sunypoly.edu).

GF is the world’s first full-service semiconductor foundry with a truly global footprint. Launched in March 2009, the company has quickly achieved scale as one of the largest foundries in the world, providing a unique combination of advanced technology and manufacturing to more than 250 customers. With operations in Singapore, Germany and the United States, GF is the only foundry that offers the flexibility and security of manufacturing centers spanning three continents. The company’s 300mm fabs and 200mm fabs provide the full range of process technologies from mainstream to the leading edge. This global manufacturing footprint is supported by major facilities for research, development and design enablement located near hubs of semiconductor activity in the United States, Europe and Asia. GF is owned by Mubadala Development Company. For more information, visit <http://www.globalfoundries.com>.