

CENTER FOR AUTONOMOUS SOLAR POWER (CASP)

GLOBALLY, WE USE MORE THAN 15 TERAWATTS OF ENERGY ANNUALLY— AN AMOUNT EXPECTED TO QUADRUPLE OVER THE NEXT 50 YEARS. WE ARE EACH IMPACTED DAILY BY THE RISING COST OF ENERGY TO HEAT OUR HOMES, DRIVE OUR CARS AND MAINTAIN OUR LIFESTYLES.

Binghamton University is at the forefront of addressing our world's energy challenges. Our team of experts has already demonstrated success with solar-cell design, thin-film packaging and concept-to-commercialization prototyping. This talent comes together in our Center for Autonomous Solar Power (CASP).

Formed in 2008, the CASP is meeting the scientific challenges to reduce the cost of solar power and enhance energy efficiency — bridging the gap between technology and commercialization.

Sustainability is a key requirement if solar energy is to emerge as a major energy source in the future. Current solar power systems — based most often on expensive, rigid, fragile silicon solar cells — have high fabrication and installation costs. Newer technologies using thin-film solar cells have the potential for lower costs, but still lag in the worldwide market due to cost-to-efficiency ratios.

Building on Binghamton University's expertise in the Center for Advanced Microelectronics Manufacturing (CAMP), Institute for Materials Research (IMR), and Integrated Electronics Engineering Center (IEEC), the CASP is developing thin film solar cells made from abundant and non-toxic elements. Working with revolutionary next-generation nanotechnologies, the CASP's flexible solar cells will use fully sustainable materials and green manufacturing methods.

The global solar-cell market is now a multi-billion dollar industry and growing rapidly. Building on our experience with commercialization in the electronics industry, the CASP will enable U.S. industry to achieve a dominant position in a fiercely competitive global market using large-area solar modules as a springboard.

The technology initiatives at the CASP will expand the solar electric supply, seed new industries and infuse new manufacturing jobs in New York state, spurring economic activity that will benefit consumers and the environment. With CASP, New York state is positioned to be a leader in solar-energy generation and a hub for energy technology development.

The Center for Autonomous Solar Power is a multi-disciplinary research center that functions as part of the Binghamton University Center of Excellence in Small Scale Systems Integration and Packaging (S³IP).

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