

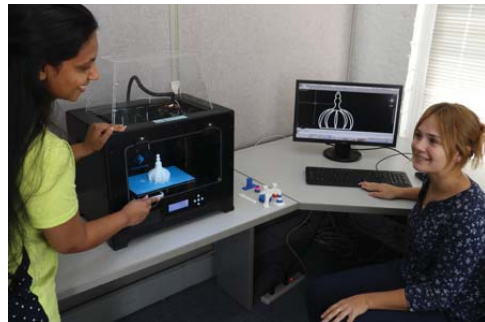
Transforming the way we light the world

Solid-state lighting's key promise is in its ability to save energy, reduce maintenance, connect lighting with other building systems, transmit data, and essentially change our entire lighting infrastructure. Solid-state lighting has evolved to a point where the LED is now the preferred light source for many lighting applications. The LED lighting system is a mostly mature technology, and LED market transformation is estimated to approach 50% by 2025. Organic light-emitting diodes (OLED) for lighting applications are also on the horizon. Research and development work is now moving toward exploring how solid-state lighting can be customized and how to use lighting to gather information that provides greater value to both producers and users.



The Lighting Research Center's Solid-State Lighting Program has expanded its scope of research and educational programs to enhance this technology, overcome barriers, and show benefits beyond energy savings.

The Solid-State Lighting Program at Rensselaer's Lighting Research Center seeks to support the industry through research that shows the value of lighting. Embracing the trends toward customization and data analytics, solid-state lighting research has evolved to include new developments such as the Internet of Things (IoT) and 3D printing – areas where the lighting industry can both find and add value. The Solid-State Lighting Program's multidisciplinary staff focuses its efforts in the areas of lighting systems and components research, material and manufacturing analyses, field demonstrations, market transformation activities, education, and industry collaboration. Research areas and activities undertaken include:



- ♦ LED Lighting Systems and Components
- ♦ 3D Printing for SSL
- ♦ IoT and Connected Lighting
- ♦ OLED Lighting
- ♦ Applications Demonstration
- ♦ Human Factors Study
- ♦ Industry Collaboration
- ♦ Professional and Graduate Education

Education

Education plays an important role in the successful implementation of solid-state lighting for general illumination. The LRC conducts seminars and workshops to educate and train lighting fixture designers and manufacturers, lighting specifiers, architects and other professionals interested in learning more about LEDs, OLEDs, lighting controls, 3D printing, and how to successfully integrate these technologies into fixtures and applications.

Industry Collaboration

The LRC organizes the Alliance for Solid-State Illumination Systems and Technologies (ASSIST) and the Additive Manufacturing for Lighting Consortium. ASSIST was established in 2002 as a collaboration between researchers, manufacturers, and government organizations with the mission of enabling the broad adoption of solid-state lighting by providing factual information based on applied research and by visualizing future applications. On behalf of ASSIST, the LRC conducts research, demonstration and educational activities. The Additive Manufacturing for Lighting Consortium was established in 2019 to understand the state of the art of AM and in particular its impact on the solid-state lighting, building, and construction industries. The consortium is in the process of developing an industry roadmap to guide its future activities.

About the Lighting Research Center

Rensselaer's Lighting Research Center is the world's leading university-based research and educational institution devoted to lighting. Based in Troy, New York, the LRC's faculty and staff of nearly 30 experts is working to advance the effective use of lighting to create a legacy of positive change for society and the environment. The multidisciplinary team includes physicists, architects, engineers, designers, psychologists, biophysicists and communications specialists. Since 1988, the LRC has collaborated with industry, government, academia, and public advocacy groups to make a positive impact on lighting manufacturing, design, specification, installation, and use through research, application, education, and market transformation. LRC facilities include a fully equipped photometry laboratory, climate-controlled lamp and electrical testing laboratories, a human factors laboratory, and an engineering workshop to produce fully functional prototypes and models.

For More Information

Visit the LRC Solid-State Lighting Program Web site for details on research projects, publications, industry programs, and other activities: www.lrc.rpi.edu/programs/solidstate

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**Lighting
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