

# CALL FOR PAPERS

## Special Section on Solid-State Lighting Technologies *IEEE Transactions on Components and Packaging Technologies*

In the 19th century, one of the most important inventions in terms of changing how people lived and worked was the incandescent light bulb. Starting in 1802 with Sir Humphry Davy's first demonstration of incandescent light, it took over 100 years of research before evolving into the incandescent light bulbs that we have today, and there are countless numbers of them in use in homes, cars, traffic lights, and commercial buildings all around the world and in outer space. As the world becomes more conscious of energy usage, with lighting accounting for approximately 20% of the electricity use in developed countries, the inefficiencies of incandescent bulbs have led to significant governmental support for energy-saving alternatives. The U.S. Department of Energy hopes to reduce electrical consumption for lighting across the country by 50 percent by the year 2025. Some of the most recent LED technologies are given below.



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[www.cree.com](http://www.cree.com) [www.lumileds.com](http://www.lumileds.com)



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The future seems bright for solid-state lighting technologies. With lifetimes of 50,000 to 60,000 hours and light outputs of over 100 lumens per watt, solid-state lighting offers better performance than many other lighting technologies. It is expected that it will replace all of the lighting technologies during next decade. Their lack of hazardous materials, such as mercury or halogen gases, makes them a more environmentally friendly alternative to fluorescent lamps. However, they are currently high cost and unable to match the light output of high-wattage light bulbs due to temperature limits on the materials. Global efforts to make SSL technology affordable are underway. This includes LED chips, packaging, thermal management, driver electronics, fixtures, and integration.

While the 19th century was the time for development of the incandescent light bulb, the 21st century is the time for development of solid-state lighting for residential, commercial, and industrial applications. We would like to draw attention to the recent efforts in this technology by publishing a special section in the *IEEE Transactions on Components and Packaging Technologies*, dedicated to solid-state lighting.

Topics of interest include, but not limited to:

- LED chip/substrate technology
- Semiconductor material development
- Packaging
- Thermal management
- Light quality (CRI, CCT) improvement techniques
- Efficiency improvements
- Fixture technologies
- System electrical efficiency and ROI (return on investment)
- Reliability

These developments can be in any solid-state lighting technology field. Both academic and industrial scientists are encouraged to submit their recent findings relevant to SSL technology. Papers will go through a rigorous review process based on IEEE guidelines and selected papers will be published in the CPT Transactions. Manuscripts are to conform to the standard IEEE transactions format, which can be found at <http://www.cpmpt.org/trans/transepem-auth.html>.

Manuscripts must be submitted on line at ScholarOne Manuscripts: <http://mc.manuscriptcentral.com/tcpt-ieee>:

1. If you have not submitted a manuscript to the CPMT Transactions before -- create a user account for yourself.

2. Enter your Author Center and follow steps for submitting your manuscript.

3. **IMPORTANT:** In the Cover Letter window -- note "Manuscript is submitted for Special Section on Solid-State Lighting Technologies."

To be considered for this Special Section, papers should be submitted by no later than **September 30, 2009**.

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