

September 30, 2004

DOE Announces Selections from SSL Product Development FOA

The National Energy Technology Laboratory (NETL), on behalf of the US Department of Energy's Office of Building Technologies (BT) is pleased to announce the selection of five (5) applications in response to Funding Opportunity Announcement (FOA) DE-PS26-04NT42118 entitled *Solid State Lighting Product Development*. The objective of the FOA was to solicit applications from organizations, e.g., small and large businesses with team members from universities and national laboratories, that begin to examine certain high priority product development activities that will advance the Lighting Research and Development (LR&D) portfolio of Solid State Lighting (SSL) beyond its present embryonic state. The five selections are anticipated to significantly contribute to the goal of the SSL program:

By 2015, develop advanced solid-state lighting technologies that, compared to conventional lighting technologies, are much more energy efficient, longer lasting, and cost competitive by targeting a product system efficiency of 50 percent with lighting that accurately reproduces sunlight spectrum.

The present selections are among the first in a series that may span the next decade. The selections, in no specific order, are summarized below. The award of cooperative agreements are subject to negotiations.

Recipient: Philips Electronics North America Corporation

Title: An Efficient LED System-in-Module for General Lighting Applications

Project Value: \$2,612,128 **Applicant Cost Share:** 40% **Duration:** 36 months

Summary: Philips proposes to develop a SSL technology platform for multi-colored LED sources (RGBA) in which a single integrated module containing multiple high power LED chips that will serve as an effective building block to handle most commercial applications. The benefits of the proposed design include the flexibility for the user to change color appearance, dim the lamp without changing the color, sense ambient lighting conditions and couple to other sensors and control systems, all the while experiencing excellent and constant color rendering and big energy and financial savings at an acceptable first-time cost.

POC: Mr. Bruce Rhodes (847.390.5148)

Recipient: Dow Corning Corporation

Title: Thin Film Packaging Solutions for High Efficiency OLED Lighting Products

Project Value: \$5,021,698 **Applicant Cost Share:** 52% **Duration:** 36 months

Summary: Dow Corning proposes to demonstrate the relevant technology required to penetrate a small but important niche market for OLEDs. As proposed by Dow Corning and team member Philips Lighting Company, this project will deliver a 40 lumens per watt (lm/W), 2ft by 2ft lighting panel with a CRI>85 and lifetime exceeding 10,000 hours in three years.

POC: Dr. Gregg Zank (989.496.5945)

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Recipient: General Electric Global Research

Title: High Efficiency, Illumination Quality White OLEDs for Lighting

Project Value: \$4,107,025 **Applicant Cost Share:** 30% **Duration:** 36 months

Summary: GE and team member Dow Chemical propose to develop a novel organic material system that eclipses existing white OLED systems by a factor of three. Labeled the multiple emitting spin-state architecture (MESA), it combines the best performance enhancing features of fluorescent and phosphorescent OLEDs that promise to achieve >100 lm/W, devices with outstanding color and spectral performance.

POC: Mr. Todd Graves (518.387.4554)

Recipient: Light Prescriptions Innovators, LLC

Title: SCALING UP: KiloLumen Solid-State Lighting Exceeding 100 LPW via Remote Phosphor

Project Value: \$1,448,474 **Applicant Cost Share:** 20% **Duration:** 18 months

Summary: LPI and team members (OSRAM Opto Semiconductors, Lawrence Berkeley National Laboratory, University of California – Merced and Fisk University) propose using novel “optical manifolds”, non-imaging optics, spectrally selective filters, and a combination of micro and macro compound parabolic concentrators to advance a truly novel design of a device using many LED die and a remotely located phosphor. The design offers many unique and valuable features that combined, may lead to devices with advanced performance capability.

POC: Mr. Roberto Alvarez (949.265.0541)

Recipient: Cree, Inc.

Title: Small-Area Array-Based LED Luminaire Design

Project Value: \$2,262,814 **Applicant Cost Share:** 27% **Duration:** 36 months

Summary: Cree Inc. Santa Barbara Technology Center (SBTC) proposes to design and develop a compact light emitting diode (LED) based luminaire which will enable the replacement of a significant portion of the current incandescent market, allowing significant energy savings with short lamp payback periods. Specifically, the proposed program will develop a BR/PAR-style integrated reflector luminaire suitable for low-cost insertion into existing commercial and residential lighting fixtures. The proposed program seeks to address critical issues associated with optical, electrical and thermal design through a coordinated effort combining modeling and iterative prototype design, fabrication, and testing. The proposed design will incorporate novel arrays of small-area LED chips with associated downconversion technology to produce a compact integrated luminaire with high efficiency (~100 lm/W) light emission at useful color temperatures (2800-3000) and a suitable color rendering index for the target market application.

POC: Dr. Bernd Keller (805.968.9460)