# Dim to Vivid Technology Enhances Color Brightness in Low Light ID# 2016-4475



# Minimum Dim Level Full Output

Increased Gamut at Dim Light Levels

# **Technology Summary**

At low light levels, human sensitivity to color is reduced, making colors appear duller, less vibrant, and less vivid. This new technology is an engineering development that compensates for the loss of visual sensitivity by intensifying the colors of objects in low light levels, thereby enhancing vision. Specifically, the technology increases the color range of a multi-light-emitting device while the light levels are being dimmed. The technology independently drives each emitter so the total color gamut increases while total lumen output of the light-emitting device decreases.

# Application & Market Utility

Color perceptions and dimming are important considerations in lighting for residential uses, museums, and the hospitality market. This invention could be deployed as an LED replacement lamp (e.g., with a conventional base type, such as a medium screw base or pin base), an LED module (e.g., incorporated into luminaires), or a luminaire (inclusive of housing and optics).

# Next Steps

Seeking research collaboration and licensing opportunities.

## TECHNOLOGY READINESS LEVEL 4-7

### Seeking

Investment | Licensing | Research

### Keywords

- Color Enhancement
- Color Perception
- Light-emitting Device
- Hunt Effect

### Researchers

**Kevin Houser, Ph.D.** Professor, Department of Architectural Engineering in the College of Engineering

**Originating College** College of Engineering

Office of Technology Management Contact Swope, Bradley

bas101@psu.edu 814-863-5987



Invent Penn State is a Commonwealth-wide initiative to spur economic development, job creation, and student career success. Invent Penn State blends entrepreneurship-focused academic programs, business startup training and incubation, funding for commercialization, and university-community collaborations to facilitate the challenging process of turning research discoveries into valuable products and services that can benefit Pennsylvanians and humankind. Learn more at invent.psu.edu.

Penn State is an equal opportunity, affirmative action employer, and is committed to providing employment opportunities to all qualified applicants without regard to race, color, religion, age, sex, sexual orientation, gender identity, national origin, disability or protected veteran status.