Oxyfluoride Phosphors for Use in White Light LEDs
Tech ID: 23416 / UC Case 2009-704-0

BRIEF DESCRIPTION
A novel Ce3+-doped oxyfluoride phosphor material for solid-state lighting applications.

BACKGROUND
White light generation for most commercial light emitting diode (LED) lamps employ yellow Ce3+ phosphors excited by blue InGaN diodes due to their unsurpassed efficiency. However, the Ce3+ phosphors have relatively weak emissions in the red region. Moreover, the color output from these phosphors is strongly dependent on temperature and current, creating problems for high power LEDs.

DESCRIPTION
Researchers at the University of California, Santa Barbara have invented a novel Ce3+-doped oxyfluoride phosphor material for solid-state lighting applications. This invention produces much higher photoluminescence intensities than commercial Ce3+, allowing for tunability of emission color and excitation band, resulting better light quality with high efficiency. Moreover, this material can be used for white light generation with a number of phosphor combinations (near UV light with red, green-orange or yellow phosphors) and allows for greater color rendering.

ADVANTAGES
- High efficiency
- Good color rendering properties
- Variety of applications

APPLICATIONS
- LEDs
- Liquid Crystal Displays

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PATENT STATUS

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