

## The Latest Technology Trend of LED Phosphors

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### Abstract

*The applications of white LEDs has been expanded from mobile phone to LCD TV as a backlight source recently and now are penetrating into the lighting market. With these changes new requirements for LEDs phosphors are demanded. In this point of view recent technology trend of phosphors for LCD backlight and lighting will be discussed.*

### Discussion

White LEDs (light-emitting diode) is one of promising technology which can replace conventional incandescent and fluorescent lamps, due to their reliability, high efficiency and low energy consumption [1-3]. At the moment the commercial white LEDs comprising a blue LED chip and YAG:Ce<sup>3+</sup> yellow phosphor are widely used for backlight of mobile phone LCD. With increase of efficiency of high power LED chips and cost effective production of backlight modules, LED BLUs are replacing the CCFL for LCD TV this year. In addition, many people expect white LEDs will be widely used for general lightings in few years

However, there are some technical issues to be solved to get the variety of applications. In terms of phosphor performances, thermal stability of phosphors in high-power LEDs needs to be improved. The CRI of white LEDs with yellow phosphors is ~75 at most and this could be another technical issue to be overcome. Improvement color reproducibility could be interesting topic of phosphor engineers who can design the emission spectrums. Compatibility of phosphor with packaging materials will be discussed at the end of the talk.