

Abstract Submitted  
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**Epitaxial BaCuSeF thin films: a new blue LED candidate?**

ANDRIY ZAKUTAYEV, ROBERT KYKYNESHI, DAVID MCINTYRE, Department of Physics, Oregon State University, HEATHER PLATT, DOUGLAS KESZLER, Department of Chemistry, Oregon State University, JANET TATE, Department of Physics, Oregon State University — BaCuSeF is a wide-gap p-type semiconductor. It belongs to a broader family of layered chalcogenide-fluorides [doi:10.1016/j.tsf.2007.10.073]. This family is isostructural to layered chalcogenide-oxides [doi:10.1016/j.tsf.2005.08.268]. Thin films of BaCuSeF were deposited on MgO substrates using pulsed laser deposition (PLD). BaCuSeF grows epitaxially on MgO, as proven by x-ray diffraction analysis. Resulting thin films have a hole concentration of  $10^{18}\text{cm}^{-3}$  and mobility of  $1.5\text{ cm}^2/\text{Vs}$ , both relatively large for this class of materials. They also exhibit narrow excitonic absorption and emission peaks near 400nm at room temperature. This indicates that the concentration of defects and dislocations in samples is low. These features make epitaxial BaCuSeF films promising candidates for applications in blue light-emitting diodes (LEDs).

Andriy Zakutayev  
Department of Physics, Oregon State University

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