

MAR08-2007-003190

Abstract for an Invited Paper
for the MAR08 Meeting of
the American Physical Society

**George E. Pake Prize Talk: Science and the Energy Security Challenge: The Example of Solid State
Lighting**

JULIA PHILLIPS, Sandia National Laboratories

Securing a viable, carbon neutral energy future for humankind will require an effort of gargantuan proportions. As outlined clearly in a series of workshops sponsored by the DOE Office of Basic Energy Sciences (<http://www.sc.doe.gov/bes/reports/list.html>), fundamental advances in scientific understanding are needed to broadly implement many of the technologies that are held out as promising options to meet future energy needs. Technologies of interest range from solar energy, to nuclear energy, to approaches to clean combustion. Using solid state lighting based on inorganic materials as an example, I will discuss some recent results and new directions, emphasizing the multidisciplinary, team nature of the endeavor. I will also offer some thoughts about how to encourage translation of the science into attractive, widely available products – a significant challenge that cannot be ignored. This case study offers insight into approaches that are likely to be beneficial for addressing other aspects of the energy security challenge.