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(54) **FLUORESCENT LIGHTING WITH ALUMINUM NITRIDE PHOSPHORS**

(71) Applicants: **Lawrence Livermore National Security, LLC.**, Livermore, CA (US); **GE Electric Company**, Schenectady, NY (US)

(72) Inventors: **Nerine J. Cherepy**, Piedmont, CA (US); **Stephen A. Payne**, Castro Valley, CA (US); **Zachary M. Seeley**, Livermore, CA (US); **Alok M. Srivastava**, Niskayuna, NY (US)

(73) Assignees: **Lawrence Livermore National Security, LLC**, Livermore, CA (US); **General Electric Company**, Schenectady, NY (US)

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See application file for complete search history.

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Primary Examiner — Tracie Y Green
(74) *Attorney, Agent, or Firm* — Eddie E. Scott

(57) **ABSTRACT**
A fluorescent lamp includes a glass envelope; at least two electrodes connected to the glass envelope; mercury vapor and an inert gas within the glass envelope; and a phosphor within the glass envelope, wherein the phosphor blend includes aluminum nitride. The phosphor may be a wurtzite (hexagonal) crystalline structure Al_(1-x)M_xN phosphor, where M may be drawn from beryllium, magnesium, calcium, strontium, barium, zinc, scandium, yttrium, lanthanum, cerium, praseodymium, europium, gadolinium, terbium, ytterbium, bismuth, manganese, silicon, germanium, tin, boron, or gallium is synthesized to include dopants to control its luminescence under ultraviolet excitation. The disclosed Al_(1-x)M_xN: Mn phosphor provides bright orange-red emission, comparable in efficiency and spectrum to that of the standard orange-red phosphor used in fluorescent lighting, Y₂O₃:Eu. Furthermore, it offers excellent lumen maintenance in a fluorescent lamp, and does not utilize "critical rare earths," minimizing sensitivity to fluctuating market prices for the rare earth elements.

26 Claims, 4 Drawing Sheets

