

**A SINGLE UV LED PHOSPHOR FOR WHITE
LIGHT GENERATION**

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We report on the luminescence in the vanadate garnets: $A_{2-2x}Na_{1+x}B_xD_2V_3O_{12}$ ($A=Ca^{2+}, Sr^{2+}$, or Ba^{2+} ; $B=Eu^{3+}, Sm^{3+}, Dy^{3+}$; $C=Mg^{2+}$ or Zn^{2+}). This host lattice has intrinsic luminescence from $(VO_4)^{3-}$ groups at 530 nm which can be excited by near-UV light (350-370 nm). The addition of other luminescent ions such as Eu^{3+}, Sm^{3+} , and/or Dy^{3+} leads to resonant energy transfer between the $(VO_4)^{3-}$ groups and these ions giving phosphors that generate white light with high CRIs (>85) and luminosities (>340 lm/W-rad). The factors which determine the probability for energy transfer between the $(VO_4)^{3-}$ groups and as Eu^{3+}, Sm^{3+} , and/or Dy^{3+} will be analyzed for the effect on the color and efficiency of these phosphors.