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**UV excited long persistent LEDs** DONGDONG JIA, JENNA GIRARDI, SEAN GEHART, LENU ZAMANN, DUSTIN KERN, Lock Haven University of Pennsylvania, NANOTECH TEAM — The first long persistent LED indicator was made by coating  $\text{Sr}_2\text{MgSi}_2\text{O}_7:\text{Eu}^{2+}$ ,  $\text{Nd}^{3+}$ ,  $\text{SrAl}_2\text{O}_4:\text{Eu}^{2+}$ ,  $\text{Dy}^{3+}$  and  $\text{CaS}:\text{Eu}^{2+}$ ,  $\text{Tm}^{3+}$ ,  $\text{Ce}^{3+}$  long persistent nanophosphors to a blue LED. When considering long persistent LEDs there is more emphasis on the persistence than there is on the brightness, therefore trapping efficiency should be the first priority. Following this consideration, a UV excited long persistent LED is developed because UV pumped long persistent phosphors usually has longer persistence. UV light can excite the electrons to the conduction band more efficiently than lower energy photons such as a blue photon. Although, UV LEDs are less efficient than blue LEDs for illumination, UV LEDs will produce the highest trapping rate and longest persistence time.

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