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Luminescent Properties of $Ca_3Sc_2Si_3O_{12}$: Mn^{2+} and Ce^{3+} for a White LED WILLIAM COGGINS, JESSICA LANG, LI MA, Physics Department Georgia Southern Univ. — In this experiment, we studied the excitation and emission properties, as well as the fluorescence decay of the doubly doped $Ca_3Sc_2Si_3O_{12}$: Mn^{2+} and Ce^{3+} phosphor. The phosphor is coated on a GaN LED chip, and the Mn^{2+} and Ce^{3+} centers give red and green emissions, respectively, subject to the blue excitation from the chip. Together with the transmitted blue light from the LED chip, the system yields an ideal white light, with a potential application for lighting. The red emission from Mn^{2+} ions has a longer decay time than that of the green emission from the Ce^{3+}. The color composition and stability along with the input power have also been studied.

Willian Coggins
Physics Department Georgia Southern Univ.

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