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CL and PL properties of $\text{Mg}_2\text{SnO}_4:\text{Mn}$ as a novel green phosphor

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$\text{Zn}_2\text{SiO}_4:\text{Mn}$ and $\text{ZnGa}_2\text{O}_4:\text{Mn}$ have been used as green phosphors for PDP and FED, respectively. For exploitation of a new green phosphor, we synthesized the Mn-doped Mg_2SnO_4 with a spinel structure. Crystal structure of the phosphor was investigated by the X-ray diffraction technique. For the reduced powder, the valence states of Mn ions were studied using the EPR spectrometer. The phosphor characteristics such as chromaticity coordinates, decay time, excitation and emission spectra were investigated under the electron bombardment and the vacuum ultraviolet excitation. The optimum concentrations of Mn dopant exhibiting the maximum emission intensity were different from the CL and VUV PL spectra. In addition, luminescent properties of $\text{Mg}_2\text{SnO}_4:\text{Mn}$ were compared with those of $\text{Zn}_2\text{SiO}_4:\text{Mn}$ and $\text{ZnGa}_2\text{O}_4:\text{Mn}$ phosphors.