

**THE LOCAL STRUCTURE OF PHOSPHOR MATERIAL, Sr<sub>2</sub>MgSi<sub>2</sub>O<sub>7</sub> AND Sr<sub>2</sub>MgSi<sub>2</sub>O<sub>7</sub>:Eu<sup>2+</sup> BY INFRARED SPECTROSCOPY**

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**ABSTRACT**

The structure of Sr<sub>2</sub>MgSi<sub>2</sub>O<sub>7</sub> and Sr<sub>2</sub>MgSi<sub>2</sub>O<sub>7</sub> doped with Eu<sup>2+</sup> were presented in this paper. The samples have been prepared using solid state reaction, whereas it has been sintered at 1350°C for 3 hour in air and 1350°C for 3 hour in a weakly reductive atmosphere of 10% H<sub>2</sub>-90% N<sub>2</sub> respectively. The obtained samples were characterized using EDAX, X-ray Diffraction (XRD) and Infrared Spectroscopy. X-ray diffraction pattern shown that the single crystalline phase obtain was contained Sr<sub>2</sub>MgSi<sub>2</sub>O<sub>7</sub> for both doped and undoped sample. The structure features of both samples base on silicate tetrahedral were obtained by infrared spectroscopy. Vibration band at 1638 cm<sup>-1</sup> and 1474 cm<sup>-1</sup> in the Sr<sub>2</sub>MgSi<sub>2</sub>O<sub>7</sub> doped with Eu<sup>2+</sup> represent Mg<sup>2+</sup> and Sr<sup>2+</sup> respectively. Majority vibration mode was shifted to high frequency when doping Eu<sup>2+</sup> in the Sr<sub>2</sub>MgSi<sub>2</sub>O<sub>7</sub> sample.

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