

List of Table

Table 1.1	Types of luminescence.	7
Table 2.1	Basic information of fuels used in combustion synthesis method.	26
Table 2.2	List of sample of single RE ³⁺ doped Sr ₂ P ₂ O ₇ synthesized for the study of its luminescence properties.	32
Table 2.3	List of sample of double rare earth doped Sr ₂ P ₂ O ₇ synthesized for the study of its luminescence properties.	33
Table 3.1	Comparison of experimental XRD data of Sr ₂ P ₂ O ₇ with published JCPDS 24-1011 data.	57
Table 3.2	Crystal structure parameters of Sr ₂ P ₂ O ₇ : x Ce ³⁺ (x = 0.1, 0.5, 1.0, 1.5, 2.0 and 2.5 mol%).	58
Table 3.3	Crystal structure parameters Sr ₂ P ₂ O ₇ : x Eu ³⁺ (x = 0.5, 1.0, 1.5, 2.0, 2.5 and 5.0 mol%).	58
Table 3.4	Crystal structure parameters of Sr ₂ P ₂ O ₇ : x Tb ³⁺ (x = 0.5, 2.5 and 5.0 mol%).	58
Table 3.5	Crystal structure parameters of Sr ₂ P ₂ O ₇ : xDy ³⁺ (x = 0.5, 1.5 and 2.5 mol%).	59
Table 3.6	Crystal structure parameters of Sr ₂ P ₂ O ₇ : x Er ³⁺ (x = 0.5, 1.0, 1.5, 2.0 and 2.5 mol%).	59
Table 3.7	Crystal structure parameters of Sr ₂ P ₂ O ₇ : x Gd ³⁺ (x = 0.5, 1.0, 1.5, 2.0 and 2.5 mol%).	59
Table 3.8	Crystallite Size of Sr ₂ P ₂ O ₇ : RE (RE = Ce ³⁺ , Eu ³⁺ , Tb ³⁺ , Dy ³⁺ , Er ³⁺ Gd ³⁺) calculated through Scherrer's formula.	60
Table 3.9	Crystallite Size of Sr ₂ P ₂ O ₇ : RE (RE = Ce ³⁺ , Eu ³⁺ , Tb ³⁺ , Dy ³⁺ , Er ³⁺ Gd ³⁺) calculated trough Williamson-Hall plot analysis.	60
Table 3.10	Percentage difference of radius, and valance charge to ionic radius ratio of ions in phosphor.	62
Table 3.11	Crystal structure parameters of Sr ₂ P ₂ O ₇ : 1.0 mol% Ce ³⁺ , 1.0 mol% RE (RE = Eu ³⁺ , Tb ³⁺ , Dy ³⁺ , Er ³⁺ Gd ³⁺ , Sm ³⁺ , Nd ³⁺).	66
Table 4.1	Timescale range for fluorescence processes.	83
Table 4.2	CIE chromaticity coordinates and the integral intensity ratio of transition ⁵ D ₀ - ⁷ F ₂ to ⁵ D ₀ - ⁷ F ₁ of Sr ₂ P ₂ O ₇ :xEu ³⁺ phosphor for different excitation wavelength.	102
Table 4.3	CIE chromaticity coordinates of Sr ₂ P ₂ O ₇ : x% Tb ³⁺ phosphor.	108

Table 5.1	Radiation dose values for different irradiation time for β -radiation of Sr^{90} .	154
Table 5.2	Summary of TL kinetic parameters of glow curve for sample 2.5 mol% Ce^{3+} doped $\text{Sr}_2\text{P}_2\text{O}_7$ irradiated by β -radiation for 5 minute of 0.48 Gy dose calculated by GCD method.	157
Table 5.3	Summary of TL kinetic parameters for 2.5 mol% Ce^{3+} doped $\text{Sr}_2\text{P}_2\text{O}_7$ irradiated by β -radiation for 5 minute of 0.48 Gy dose calculated by PSM.	157
Table 5.4	Summary of TL kinetic parameters of glow curve for sample Tb^{3+} doped $\text{Sr}_2\text{P}_2\text{O}_7$ irradiated by β -radiation for 5 minute of 0.48 Gy dose calculated by GCD method.	165
Table 5.5	Summary of TL kinetic parameters for Tb^{3+} doped $\text{Sr}_2\text{P}_2\text{O}_7$ irradiated by β -radiation for 5 minute of 0.48 Gy dose calculated by PSM.	166
Table 5.6	Summary of TL kinetic parameters of glow curve for sample Eu^{3+} doped $\text{Sr}_2\text{P}_2\text{O}_7$ irradiated by β -radiation for 5 minute of 0.48 Gy dose calculated by GCD method.	174
Table 5.7	Summary of TL glow curves parameters of $\text{Sr}_2\text{P}_2\text{O}_7$: x Eu^{3+} (x = 0.5, 1.0, 1.5, 2.0, 2.5, 5.0 mol%) calculated by Whole Curve Method and Initial Rise Method.	174
Table 5.8	Summary of TL kinetic parameters for Eu^{3+} doped $\text{Sr}_2\text{P}_2\text{O}_7$ irradiated by β -radiation for 5 minute of 0.48 Gy dose calculated by PSM.	175
Table 5.9	Summary of TL kinetic parameters of glow curve for sample Dy^{3+} doped $\text{Sr}_2\text{P}_2\text{O}_7$ irradiated by β -radiation for 5 minute of 0.48 Gy dose calculated by GCD method.	185
Table 5.10	Summary of TL kinetic parameters for Dy^{3+} doped $\text{Sr}_2\text{P}_2\text{O}_7$ irradiated by β -radiation for 5 minute of 0.48 Gy dose calculated by PSM.	186