

Development and application of spray pyrolysis for high-speed R&D

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Spray pyrolysis system for continuous sampling was developed for synthesis of multicomponent materials such as phosphor and electrical materials. Parameters such as preparation temperature, composition of synthesized material, type and concentration of precursor and/or additive can be controlled by heating rate of reactor and flow rate of spray solution to achieve diversity in morphology, crystallinity and photoluminescence (PL) characteristics.

In this work, the developed system was applied for synthesis of $\text{Ba}_2\text{SiO}_4:\text{Eu}^{2+}$ phosphor which is one of green phosphor candidates for white LED. We investigated morphology, crystallinity and PL characteristics of $\text{Ba}_2\text{SiO}_4:\text{Eu}^{2+}$ synthesized by the developed system.