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Optical structural properties of Y₂SiO₅:Ce thin films prepared by spin coating.

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Optical and structural properties of Y₂SiO₅:Ce thin films prepared by spin coating.
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Y₂SiO₅:Ce is a blue emitting phosphor that is used in field emission displays (FED). In this study thin films of Y₂SiO₅:Ce was prepared by spin coating and their luminescent and structural properties were compared to that of commercially available Y₂SiO₅:Ce powder.

Thin films of Y₂SiO₅:Ce were prepared by spin coating on soda lime glass substrates. The concentration of the solution was kept constant while the spinning speed was varied between 500, 1000 and 2000 RPM. X ray diffraction (XRD) was performed on the samples to determine the crystal structure and particle size of the films. Diffuse reflectance measurements were performed to determine the optical bandgap of the films. Photoluminescence (PL) studies were done to determine the excitation and emission wavelength of the various films.

The XRD confirmed the monoclinic crystal phase of Y₂SiO₅:Ce powder with the two major peaks at -402 and 103 present. The films showed lower intensity of the XRD peaks. The PL showed broad blue emission between 400 and 500 nm.

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