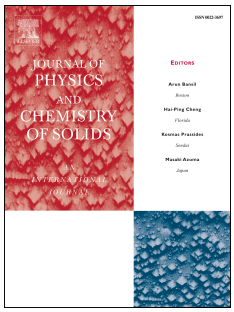
Accepted Manuscript



A photoluminescence, thermoluminescence and electron paramagnetic resonance study of EFG grown europium doped lithium fluoride (LiF) crystals

Pooja Seth, G. Swati, D. Haranath, S.M.D. Rao, Shruti Aggarwal

PII: S0022-3697(17)32076-0

DOI: 10.1016/j.jpcs.2017.12.045

Reference: PCS 8352

To appear in: *Journal of Physics and Chemistry of Solids*

Received Date: 2 November 2017

Revised Date: 15 December 2017

Accepted Date: 22 December 2017

Please cite this article as: P. Seth, G. Swati, D. Haranath, S.M.D. Rao, S. Aggarwal, A photoluminescence, thermoluminescence and electron paramagnetic resonance study of EFG grown europium doped lithium fluoride (LiF) crystals, *Journal of Physics and Chemistry of Solids* (2018), doi: 10.1016/j.jpcs.2017.12.045.

Title Page

Title: A photoluminescence, thermoluminescence and electron paramagnetic resonance study of EFG grown Europium doped Lithium fluoride (LiF) crystals

Authors: Pooja Seth[1], G. Swati[2], D. Haranath[2], S.M.D. Rao[3], Shruti Aggarwal[1]

Affiliation and full address:

[1]University School of Basic and Applied Sciences, Guru Gobind Singh Indraprastha University, Dwarka, Sec-16C, New Delhi- 110078 (India)

[2] CSIR-National Physical Laboratory (NPL), Dr. K. S. Krishnan Road, New Delhi –110012 (India)

Corresponding Author: Dr. Shruti Aggarwal, Email: shruti.al@gmail.com

Full Address: University School of Basic and Applied Sciences, Guru Gobind Singh Indraprastha University, Dwarka, Sec-16C, New Delhi, 110078, India.

Address: BRL-406, B Block, University School of Basic & Applied Sciences, Guru Gobind Singh Indraprastha University, Dwarka, New Delhi, 110078.

Highlights:-

1. To grow the Eu doped LiF crystals using a novel EFG technique.
2. Reduction of $Eu^{3+} \rightarrow Eu^{2+}$ took place in argon gas atmosphere at high temperature.
3. PL emission spectra show the coexistence of Eu^{3+} and Eu^{2+} form in the as-grown crystals.
4. A simple TL glow curve structure with prominent peak at $185^{o}C$.
5. EPR results confirm the Eu^{2+} associated defects.