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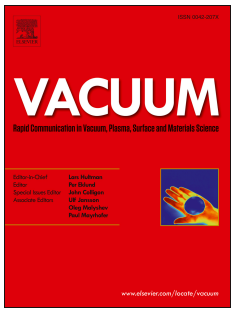

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R. Bisen, J. Tripathi, A. Sharma, Ayush Khare, Yogesh Kumar, S. Tripathi

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Optical Behaviour Of Coumarin Dye In PVA And PMMA Film Matrices

R. Bisen[1, 2], J. Tripathi[1]*, A. Sharma[2], Ayush Khare[3], Yogesh Kumar[2], and S. Tripathi[4ψ]

[1]Department. of Physics, ISLE, IPS Academy, Indore (M.P.), India.

[2]Department. of Physics, Manipal University Jaipur, Jaipur, India.

[3]Department of Physics, National Institute of Technology, Raipur India.

[4]Dept. of Physics, Medicaps Institute of Science and Technology, Indore (M.P.), India.

[ψ] Presently at: Atomic & Molecular Physics Division, Bhabha Atomic Research Centre, Mumbai, India.

Abstract

To understand the molecular level interaction of Coumarin dopant with the polymer host, we have performed optical and structural characterizations of PVA and PMMA self-standing films by doping Coumarin in two concentrations viz. 0.1 wt% and 1 wt%. It was observed that PMMA host matrix is more affected by doping in comparison with PVA matrix, which shows bond modifications and crystallization with small doping. The band-edges are observed to shift, thereby lowering the band-gaps of the base polymers upon doping. While the changes are seen only below the absorption edge in PVA, PMMA exhibits alterations in both the band edge and overall transmission in the range of 300-900 nm. The results are interpreted in terms of the molecular level inclusion of Coumarin molecules in polymer hosts.

Keywords: *PVA; PMMA; Coumarin; self-standing; XRD; SEM; optical properties*

*Corresponding author: J. Tripathi, E-mail address: jtripathi00@gmail.com