

Determination of Thermal and Optical Properties of the Conjugated Polymer MH-PPV by Photopyroelectric Spectroscopy

Jose Eduardo de Albuquerque^{C, S}
Universidade Federal de Vicosa, Vicosa, MG, Brazil

Debora Balogh and Roberto Faria
Instituto de Física de São Carlos/USP, Sao Carlos, SP, Brazil

In this study, photopyroelectric spectroscopy (PPES) was used to obtain thermal and optical properties of the conjugated polymer MH-PPV in the $300 < \lambda < 1200$ nm wavelength range, where λ is the wavelength. The normalized photopyroelectric signal intensity and its phase were independently measured as a function of wavelength λ and chopping frequency f . Equations of both the intensity and the phase of the PPES signal, taking into account the thermal and the optical characteristics of the pyroelectric detector, were used to fit the experimental results. From the fittings, we have obtained, with great accuracy, the values of thermal diffusivity coefficient α , thermal conductivity k , optical absorption coefficient β and the optical gap of MH-PPV.