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Experimental Investigation of Temperature Effect on Refractive Index of Dye Laser Liquids

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Abstract: In this work, refractive index of selected dye laser solutions were measured by fiber optic sensor. The fiber optic probe was dipped into the liquids and according to Fresnel's Reflection Law, refractive index values were obtained at the wavelength of the laser utilized. The solutions consisted of Rhodamine 6G, Rhodamine B and Coumarin 481 dissolved in methanol, and ethylene glycol, respectively. Refractive index variations of the dye solutions and their solvents with temperature were measured and the refractive index temperature coefficient dn/dT were calculated at the wavelength of 780 nm.

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