Spectroscopic Studies of Dimethylamino Derivatives of Fluorene

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2-dimethylamino-9-fluorenol and 2-dimethylamino-9(4'dimethylamino)phenyl-9-fluorenol in polar solvents in the excited state undergo conformation changes in which two fluorescent isomers are created. The isomers (in the local excited (LE) and charge transfer (CT) configuration) possess separate fluorescence bands, one appearing from the S_1 (LE) state and the second from the intramolecular charge transfer state S_1 (CT) of the neutral, aromatic molecule. Both bands show a solvatochromic effect. Using the method of the solvent induced Stokes shift of the absorption and fluorescence spectra the permanent dipole moment of the excited state of fluorene and its two derivatives have been determined. The dipole moment of the ground state and the Onsager cavity radius of the studied molecules were calculated with the Auestion Model 1 (AM1) program.

Key words: Isomer; Dual Fluoescence; Solvatochromic Effect; Charge Transfer.