

# Anomalous Inhomogeneous Broadening of Electronic Spectra of Molecules with Internal Charge Transfer

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Excited states with internal charge transfer of some molecules show an anomalously strong inhomogeneous broadening of their electronic spectra. Here such an inhomogeneous broadening for N, N-dimethylaminobenzonitrile (DMABN) was studied. The spectral inhomogeneity for DMABN in some polar solvents reaches 140 – 150 nm.

The interpretation of the obtained results is based on treating a solution as a set of chemically identical solvates with a luminophor molecule in the centre, having different energies of the pure electronic transitions. The inhomogeneity arises due to an intermolecular effect of the luminophors environment on its spectra in polar solvents, as well as a process of intramolecular movement of the twisting fragments relative to the main moiety of DMABN.

*Key words:* DMABN; Luminescence, Local-excited and Charge Transfer States;  
Inhomogeneous Broadening, Intermolecular Relaxation.