

CHARGE REDISTRIBUTION IN THE  $\beta$ -NAPHTHOL-WATER COMPLEX AS MEASURED BY HIGH RESOLUTION STARK SPECTROSCOPY IN THE GAS PHASE.<sup>a</sup>

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The extensively studied photoacid  $\beta$ -naphthol exhibits a large decrease in  $pK_a$  upon irradiation with ultraviolet light, in the condensed phase.<sup>b</sup>  $\beta$ -naphthol is almost 10 million times more acidic in the excited electronic state, compared to the ground state. Motivated by this fact, we report here the measurement of the electronic dipole moments of the  $\beta$ -naphthol-water complex in both electronic states, from which estimates of the charge transfer from solute to solvent in both states will be made. Comparisons to *ab initio* and density functional theory calculations will also be reported.<sup>c</sup>

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<sup>a</sup>Work supported by NSF (CHE-0911117).

<sup>b</sup>N. Mataga and T. Kubota, *Molecular Interactions and Electronic Spectra* (Marcel Dekker, New York, 1970).

<sup>c</sup>Y. Mo, J. Gao, S.D. Peyerimhoff, *J. Chem. Phys.* **112**, 5530 (2000).