

LASER INDUCED FLUORESCENCE OF PHTHALOCYANINE IN HYDROGEN DROPLETS

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Droplets of hydrogen molecules were generated by the same method as that of He droplets^a. Hydrogen droplets thus produced consist of about 10^5 molecules with a temperature of about 4 K^b. We found that hydrogen droplets pick up phthalocyanine molecules in a pickup chamber like He droplets. Laser induced fluorescence spectra of phthalocyanine molecules captured by hydrogen droplets showed spectra similar to those observed for phthalocyanine-(H₂)_N clusters embedded in He droplets with $N > 1000$, but the spectrum in hydrogen droplets showed sharper linewidth than that of phthalocyanine-(H₂)_N in He droplets. In addition, a clear dependence in the linewidth on the *ortho-to-para* concentration ratio was observed. We will discuss details of the observed spectra.

^aJ. P. Toennies and A. F. Vilesov, *Angew. Chem. Int. Ed.* **43**, 2622 (2004)

^bE. L. Knuth, F. Schünemann and J. P. Toennies, *J. Chem. Phys.* **102**, 6258 (1995)