OBSERVATION OF MULTIPLE PROTON/HYDROGEN ATOM RELAY IN MICROSOLVATED 7-AZAINDOLE CLUSTERS IN THE GAS PHASE

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A excited-state multiple-proton/hydrogen atom relay on the 7-azaindole-methanol clusters (7AI(MeOH)$_n$ n=1-3) has been investigated in the gas phase by measuring the mass-resolved vibronic spectra and the dispersed fluorescence spectra of 7AI(MeOH)$_n$. It has been found that only 7AI(MeOH)$_2$ cluster shows visible fluorescence due to the triple-proton/hydrogen atom relay in S_1. The 7AI(MeOH)$_2$ cluster also exhibits the prominent vibrational-mode specific proton/hydrogen atom relay. The excitation of an intermolecular stretching mode with the in-phase cooperative motion of the whole hydrogen-bond network accelerates the proton/hydrogen atom relay.