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Solvation effect observed on a molecule deposited on an argon cluster

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Real-time dynamics of the electronically excited open-ring isomer of 1,2-bis(2-methylbenzo[b]thiophen-3-yl)perfluorocyclopentene (BTF6) and 1,2-bis(2,4-dimethyl-5-phenyl-3-thienyl)perfluorocyclopentene (PTF6) molecules was investigated using a set-up that associates a molecular beam, femtosecond lasers and a velocity map imager. The molecules were either free in the gas phase or bound to an argon cluster. The free molecule dynamics was found to follow a three wavepacket model. One describes the parallel conformer (P) of these molecules. The other two wavepackets describe the reactive antiparallel conformer (AP). They are formed by an early splitting of the wavepacket that was launched initially by the pump laser. Each channel were identified. When BTF6 and PTF6 molecules are bound to an argon cluster, the same three wavepacket model applies. We will present the effect by the argon cluster on the relaxation dynamics.

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