

Abstract Submitted  
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**Retarded Local Dynamics of Single Fluorescent Probes in Polymeric Glass due to Interaction Strengthening**<sup>1</sup> HAO ZHANG, JINGFA YANG, JIANG ZHAO, Institute of Chemistry, Chinese Academy of Sciences — The effect of strengthening of interaction between single fluorescent probes and polymer matrix to the probes dynamics is investigated using single molecule fluorescence defocus microscopy. By introducing multiple hydroxyl groups to the fluorescent probes, which builds up hydrogen bonds between the probe and polymer matrix, the dynamics is discovered to be retarded. This is evidenced by the lowering of the frequency of the vibrational modes in the power spectra of the rotation trajectories of individual fluorescent probes, and also by the lowering of population of rotating probes. The results show that by strengthening the probe-matrix interaction, the local dynamics detected by the probes is equivalent to that detected by a bigger probe, due to the enhanced friction between the probe and the polymer matrix.

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