

Abstract Submitted
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Fluorescent resonant energy transfer: Correlated fluctuations of donor and acceptor¹ ZHI-GANG YU, SRI International — Mounting evidence suggests that in single-molecule fluorescent resonant energy transfer (FRET) measurements, correlation between fluctuations in donor and acceptor may be important. We present a general theory to describe this correlation and its effect on the FRET rate [1]. The correlation arises from low-energy excitations (e.g. acoustic phonons) of the molecule to which a donor-acceptor pair is attached, and results in an effective interaction between local environments or baths associated with the donor and the acceptor. The correlation is found to reduce the transfer rate, in particular at short donor-acceptor distances. The theory can quantitatively explain recent measurements of polyproline peptides. [1] Z. G. Yu, *J. Chem. Phys.* **27**, 20xxxx (Communications) (2007).

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