Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Supplementary Information

Microsecond Resolved Single-Molecule FRET Time Series Measurements Based on Line Confocal Optical System Combined with Hybrid Photodetectors

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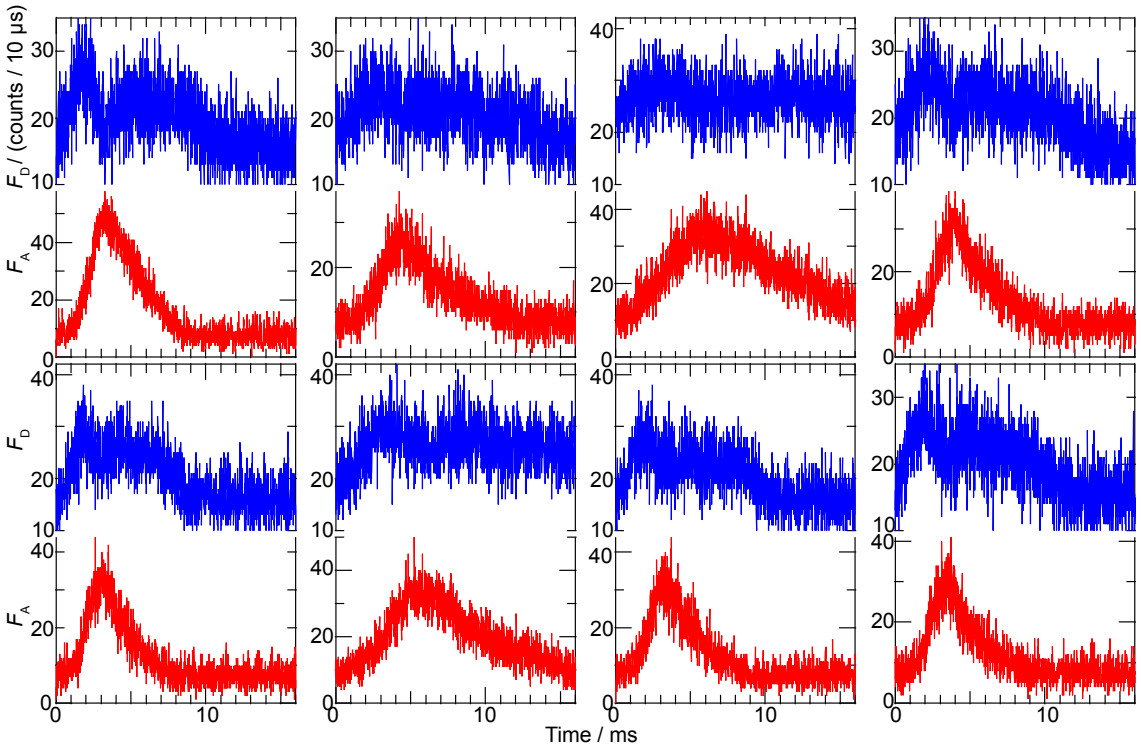

Figure S1. Examples of the fluorescence intensity data obtained by Setup II of the data recording system. A solution of the doubly labeled BdpA in the absence of denaturant was observed. The donor and acceptor fluorescence intensities were presented in blue and red traces, respectively. Each panel corresponded to different burst. The sample in the native state, possessing a constant FRET efficiency, should show the donor and acceptor traces changing in parallel. However, the observed traces showed an apparent anticorrelation of the changes in the donor and acceptor intensities. For example, in the upper left panel, the peak of the acceptor data was detected at 3~ 4 ms. In contrast, the donor intensity became weaker at the corresponding time. The results demonstrated that Setup II of the data recording system suffered from the counting loss at the higher input count rates.

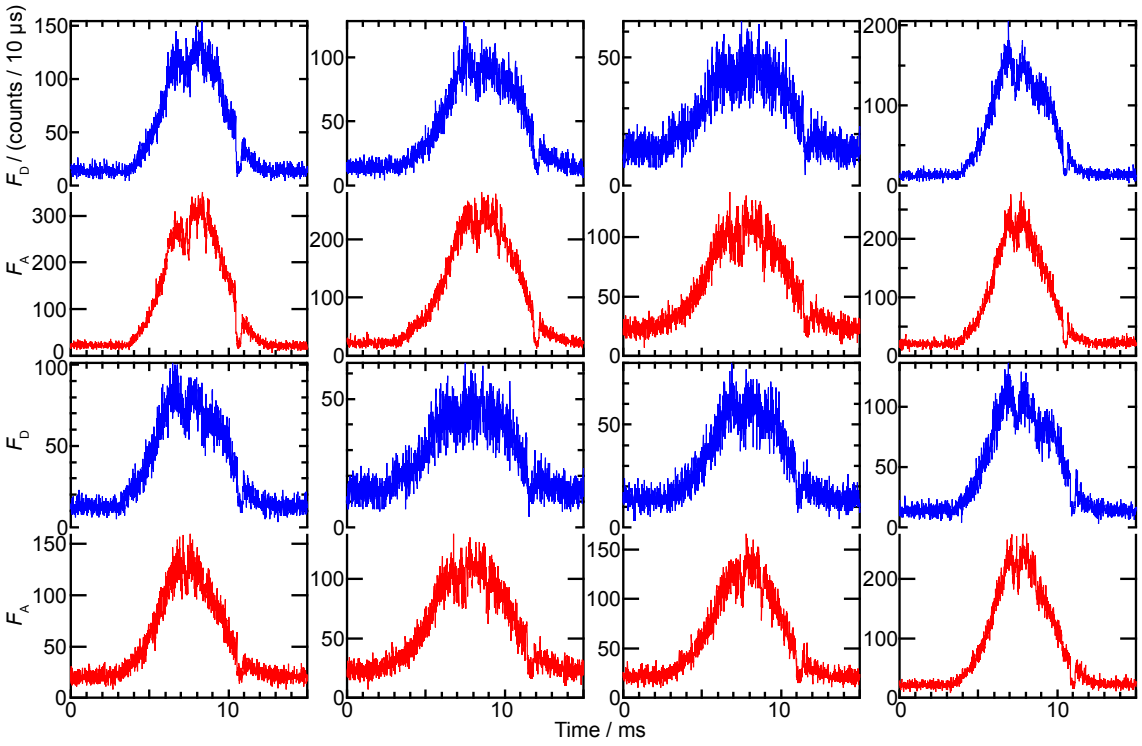

Figure S2. Examples of the fluorescence intensity data obtained by Setup III of the data recording system. A solution of the doubly labeled BdpA in the absence of denaturant was observed. The donor and acceptor fluorescence intensities were presented in blue and red traces, respectively. Each panel corresponded to different burst. In contrast to the data obtained by Setup II, the intensities of the donor and acceptor fluorescence changed in parallel. As shown in Fig. 4 of the main text, all the data could be converted to the constant FRET efficiencies.