Abstract Submitted
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Fluorescence blinking statistics from single CdSe nanorods[1] SIYING WANG, University of Pennsylvania, NATHAN LANDY, Swarthmore College, TARA FINLEY, Swarthmore College, HUGO ROMERO, University of Pennsylvania, MARIJA DRNDIC, University of Pennsylvania, CATHERINE CROUCH, Swarthmore College — We report that room temperature fluorescence from single colloidally synthesized CdSe nanorods exhibits intermittency (blinking) with truncated power-law off-time and on-time statistics. The nanorods have cross-sectional diameter 5 nm and length 20 nm and are deposited on mica substrates. The aggregated off-time statistics from 67 single nanorods follow a power law: $P(t_{off}) \sim t_{off}^{-\alpha}$, with $\alpha \approx 1.1$. Power-law behavior extends to off-times of roughly 10 s; longer-time probabilities fall below the best-fit power law. Individual nanorods also show power-law off-time statistics with $1 \leq \alpha \leq 1.3$. On-time probabilities drop below a power law after only $\sim$0.6 s; no on-times longer than $\sim$3 s are observed. These results differ somewhat from those observed with spherical CdSe or CdSe/ZnS core-shell nanocrystals, for which power-law statistics persist to much longer on- and off-times.

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Siying Wang
University of Pennsylvania

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