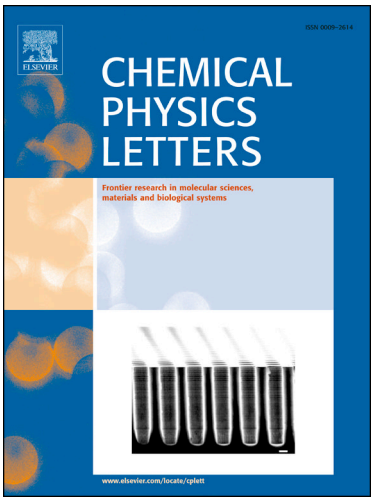

Frontiers article

Single Quantum Dot Tracking Illuminates Neuroscience at the Nanoscale

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Single Quantum Dot Tracking Illuminates Neuroscience at the Nanoscale

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Abstract. The use of nanometer-sized semiconductor crystals, known as quantum dots, allows us to directly observe individual biomolecular transactions through a fluorescence microscope. Here, we review the evolution of single quantum dot tracking over the past two decades, highlight key biophysical discoveries facilitated by quantum dots, briefly discuss biochemical and optical implementation strategies for a single quantum dot tracking experiment, and report recent accomplishments of our group at the interface of molecular neuroscience and nanoscience.