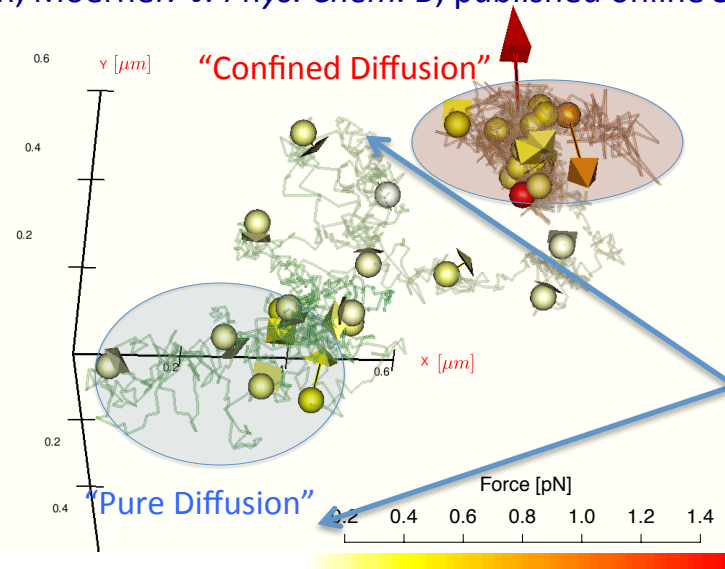
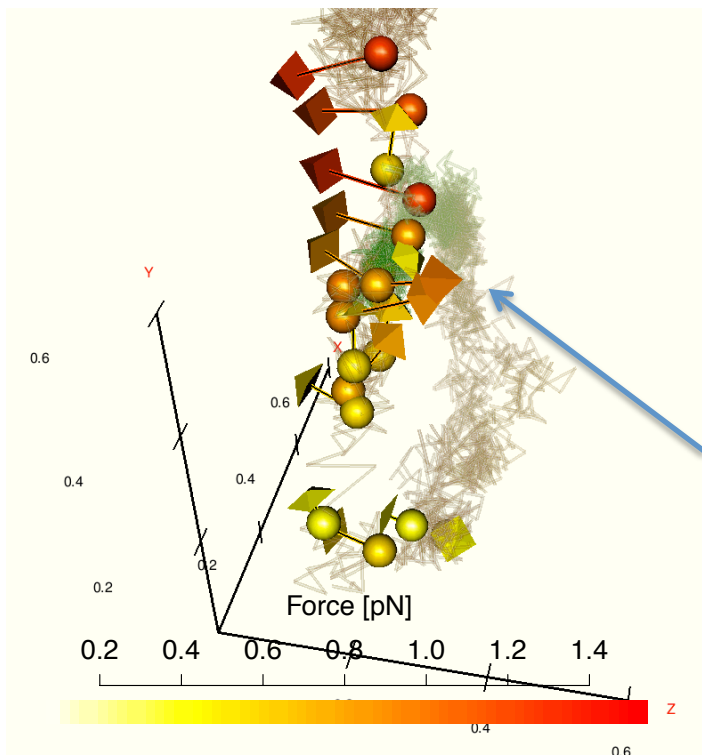


Calderon, Thompson, Casolari, Paffenroth, Moerner. *J. Phys. Chem. B*, published online September 9, 2013.

1) New 3D DH-PSF technology permits **force vector estimation** from **x,y,z** time series measurements via likelihood-based stochastic differential equation (SDE) techniques.



2) SDE techniques enable new ways to quantitatively characterize **transitions between modes of motion** in a single trajectory.



3) It is possible to check model assumptions against measurements via **goodness-of-fit-testing**. Procedure identified interesting 3D trajectories. The estimated 3D force vectors on the left suggested “tethering forces” (illustrated via cartoon) associated with molecular motor transport.

