Dynamics of an Optically Trapped Particle Modeled with the Fokker-Planck Equation JUSTIN FLAHERTY, ANDREW RESNICK, Cleveland State University — Particles trapped in a laser experience a linear restoring force that keeps them centered in the trap and will undergo constrained Brownian motion. The particle's motion causes a change in the scattered laser light. The scattered light is projected onto a Quadrant Photodiode and is used to obtain the Mean Squared Displacement of the particle, as well as the linear spring constant of the laser trap. The spring constant can be used to obtain the force applied by the laser trap, which is in the realm of piconewtons. We present our work modeling this process in terms of the Fokker-Planck equation.

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Date submitted: 22 Sep 2015   Electronic form version 1.4