Relationships involving spatial transitions for Brownian particles within a potential-well. ROSS BRODY, University of Maine — Using an optical tweezer apparatus we have trapped single latex spheres and analyzed their Brownian motion within a potential well. By considering transitions from various initial and final positions within the well, we experimentally show that the ratio of conditional probabilities, \( P(x_f, t + \Delta t|x_i, t)/P(x_i, t + \Delta t|x_f, t) \), is independent of \( \Delta t \). We also show the instanton times corresponding to last-touch-first-touch (LTFT) trajectories obey the equality, \( \text{LTFT}(x_i \rightarrow x_f) = \text{LTFT}(x_f \rightarrow x_i) \), shown by Bier et al. [Phys. Rev. E 59, 6422 (1999)].