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**John Fricks\*** (fricks@stat.psu.edu), 325 Thomas Bldg, University Park, PA 16802, and **John P Hughes** and **William O Hancock**. *Bridging Scales in Kinesin Motor Models*.

The kinesin molecular motor family takes a single 8 nanometer step forward for each ATP hydrolyzed except in rare cases. Recent experiments have demonstrated multiple steps including frequent back steps may be possible if the necklinker connecting the heads of the kinesin are extended. This talk will present a detailed intra-step model of kinesin stepping which allows for multiple steps and show that asymptotic quantities can be calculated using a combination of limit theorems for semi-Markov processes and matrix analytic techniques for Markov chains. (Received July 24, 2010)