Abstract Submitted
for the NWS16 Meeting of
The American Physical Society

**Tracking Microtubules Along an Axon**[1] BRIANNA OWEN, ERIN CRAIG-RICKETSON, NATHAN KUWADA, Central Washington Univ, PETER BAAS, ANAND RAO, Drexel University, CWU BIOPHYSICS TEAM, BAAS GROUP TEAM — Microtubules (MTs) are rigid polymers in the skeleton of eukaryotic cells that provide mechanical support and are involved in various intracellular processes. In the nerve cells, the axon protrudes out from the cell body, and is spanned by MTs of various lengths providing mechanical strength and a pathway for intracellular transport by motor proteins, such as cytoplasmic dynein. Short MTs are transported along this pathway to assemble and maintain MT bundles. Understanding physical mechanisms behind this process is important because it is essential for proper cell growth. Improper cell growth is associated with neurodegenerative diseases. This is an ongoing investigation of factors involved the movement of MTs along an axon. We hypothesize the involvement of several molecular motors of competing polarity in MT transport to produce characteristic movements of short MTs. To characterize the movement, fluorescently labeled MTs are imaged using fluorescence recovery after photobleaching (FRAP) microscopy under control conditions and treatment with Ciliobrevin D, to inhibit dynein function. The resulting time-lapse movies were processed using ImageJ to extract data including the average velocity and pausing time. This information allows refinement of current computational models.

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Date submitted: 08 Apr 2016 Electronic form version 1.4