

Abstract Submitted  
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**Kinetics of Slow Axonal Transport and Shape of Axon**<sup>1</sup> PETER JUNG, CHEN YING, YINYUN LI, Department of Physics and Astronomy, Ohio University, ANTHONY BROWN, Center for Molecular Neurobiology and Department of Neuroscience, Ohio State University — The mechanical integrity of the axon in mature axons is provided by neurofilaments(NF). NFs move through the axon at the average slow rate of 0.5mm/day, characterized by bursts of movement and extended pauses in between. The local number of NFs determines the local axonal caliber and as a result, the kinetics of NF movement determines the overall shape of the axon. We developed a kinetic model for movement of NFs based on live cell-imaging (J Neurosci. 2007,27:507, Mol Biol Cell. 2005, 16:4243). We use this model to predict changes in axonal morphology upon local modifications of the kinetics by e.g. factors released by myelin.

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