

Abstract Submitted  
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**MSP dynamics and retraction in nematode sperm** CHARLES WOLGEMUTH, UCONN Health Center, LONG MIAO, Florida State University, ORION VANDERLINDE, Florida State University, TOM ROBERTS, Florida State University, GEORGE OSTER, University of California, Berkeley — Most eukaryotic cells can crawl over surfaces. In general, this motility requires three distinct actions: polymerization at the leading edge, adhesion to the substrate, and retraction at the rear. Recent *in vitro* experiments with extracts from spermatozoa from the nematode *Ascaris suum* suggest that retraction forces are generated by depolymerization of the Major Sperm Protein (MSP) cytoskeleton. Combining polymer entropy with a simple kinetic model for disassembly I propose a model for disassembly-induced retraction that fit the *in vitro* experimental data. This model explains the mechanism by which deconstruction of the cytoskeleton produces the force necessary to pull the cell body forward and suggest further experiments that can test the validity of the model.

Charles Wolgemuth  
UCONN Health Center

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