

1135-VN-2091 **Matthew S Mizuhara*** (mizuharm@tcnj.edu). *Traveling wave solutions in a PDE model of cell motility.*

Motility of cells appears ubiquitously in biological processes ranging from wound healing to cancer metastasis. In particular, the study of crawling eukaryotic cells has been of recent interest to biologists and mathematicians. Their motion is modeled by a 2D phase-field consisting of an Allen-Cahn type PDE coupled with a vectorial reaction-diffusion equation. In the sharp interface limit, the cell's membrane evolves via a non-linear and non-local geometric evolution equation. We establish criteria for both existence and non-existence of traveling wave solutions corresponding to persistently moving cells. This work was completed with Ph.D. adviser Leonid Berlyand in collaboration with Volodymyr Rybalko, Lei Zhang, and Peng Zhang. (Received September 25, 2017)