



Bulletin of the American Physical Society

APS March Meeting 2014

Volume 59, Number 1

Monday–Friday, March 3–7, 2014; Denver, Colorado

[APS Home](#) | [APS Meetings](#) | [Join APS](#) | [Help](#)

[Bulletin Home](#)

[My Scheduler](#)

[Epitome](#)

[Author Index](#)

[Session Index](#)

[Invited Speaker](#)

[Chair Index](#)

[Word Search](#)

[Affiliation Search](#)

[Using My Scheduler](#)

[Bulletin PDFs](#)

Session T15: Focus Session: Active Soft Matter IV- Locomotion and Collective Behavior

11:15 AM–2:15 PM, Thursday, March 6, 2014
Room: 304

Sponsoring Units: DPOLY GSNP DBIO
Chair: Alfredo Alexander-Katz, Massachusetts Institute of Technology

Abstract ID: BAPS.2014.MAR.T15.5

Abstract: T15.00005 : Cell crawling on filamentous tracks

12:27 PM–12:39 PM

[Preview Abstract](#)

[MathJax On](#) | [Off](#) ← [Abstract](#) →

Authors:

Jorge Lopez
(Syracuse University)

Jennifer Schwarz
(Syracuse University)

Moumita Das
(Rochester Institute of Technology)

Recent experiments suggest that the migration of some cells in three dimensions has strong resemblance to one-dimensional migration. Motivated by this observation, we simulate a one-dimensional model cell made of beads and springs that moves on a tense semiflexible filamentous track. Physical parameters, such as the spring constants and friction coefficients, are calculated using effective theories. We investigate the mechanical feedback between the model cell and this track, as mediated by the active myosin-driven contractility and the catch/slip bond behavior of the focal adhesions, as the model cell crawls. We then compare our calculations of cell speed and the amount of deformation in the track with experiments.

To cite this abstract, use the following reference: <http://meetings.aps.org/link/BAPS.2014.MAR.T15.5>