Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

***Helicobacter pylori* displays spiral trajectories while swimming like a cork-screw in solutions.**[1] MAIRA A. CONSTANTINO, JOSEPH M. HARDCASTLE, RAMA BANSIL, Boston University, MEHDI JABBARZADEH, HENRY C. FU, University of Nevada at Reno — *Helicobacter pylori* is a helical shaped bacterium that causes gastritis, ulcers and gastric cancer in humans and other animals. In order to colonize the harsh acidic environment of the stomach *H. pylori* has evolved a unique biochemical mechanism to go across the viscoelastic gel-like gastric mucus layer. Many studies have been conducted on the swimming of *H. pylori* in viscous media. However a yet unanswered question is if the helical cell shape influences bacterial swimming dynamics or confers any advantage when swimming in viscous solution. We will present measurements of *H. pylori* trajectories displaying corkscrew motion while swimming in solution obtained by tracking single cells using 2-dimensional phase contrast imaging at high magnification and fast frame rates and simultaneously imaging their shape. We observe a linear relationship between swimming speed and rotation rate. The experimental trajectories show good agreement with trajectories calculated using a regularized Stokeslet method to model the low Reynolds number swimming behavior.

[1]Supported by NSF PHY 1410798 (PI: RB)

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Date submitted: 17 Dec 2015 Electronic form version 1.4