Abstract Submitted
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Chemotaxis of crawling and swimming *Caenorhabditis Elegans*[1] AMAR PATEL, ALEJANDRO BILBAO, Texas Tech University, VENKAT PADMANABHAN, Indian Institutes of Technology Kharagpur, ZEINA KHAN, ANDREW ARMSTRONG, Texas Tech University, KENDRA RUMBAUGH, Texas Tech University Health Sciences Center, SIVA VANAPALLI, JERZY BLAWZDZIEWICZ, Texas Tech University — A soil-dwelling nematode *Caenorhabditis Elegans* efficiently navigates through complex environments, responding to chemical signals to find food or avoid danger. According to previous studies, the nematode uses both gradual-turn and run-and-tumble strategies to move in the direction of the increasing concentration of chemical attractants. We show that both these chemotaxis strategies can be described using our kinematic model [PLoS ONE, 7: e40121 (2012)] in which harmonic-curvature modes represent elementary nematode movements. In our chemotaxis model, the statistics of mode changes is governed by the time history of the chemoattractant concentration at the position of the nematode head. We present results for both nematodes crawling without transverse slip and for swimming nematodes.

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Amar Patel
Texas Tech University

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