

Abstract Submitted  
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**Trigonometric Model for Traveling Wave Electrophoresis** JAMES VOPAL, West Virginia University/West Liberty State College, BOYD EDWARDS, West Virginia University — The motion of ions in a trigonometric spatio-temporal potential in a fluidic microchannel is investigated. Computer simulations are performed for ions of different mobilities to predict the ionic trajectories and average velocities. In many instances, plotting the average velocity verses mobility results in a Devil's staircase. When Devil's staircases are seen, no chaotic behavior is present. When the average velocity verses mobility does not result in a Devil's staircase, chaotic trajectories can be found.

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