Abstract Submitted
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A Computational Simulation of Belousov-Zhabotinsky Wave Behavior around Obstacles NATHANIEL SMITH, NIKLAS MANZ, JOHN LINDNER, College of Wooster — We developed an Objective-C model to analyze the propagation behavior of reaction-diffusions waves around obstacles in a two-dimensional, narrow channel. By comparing the wave behavior with experimental results under known conditions, the program was verified to correctly simulate their propagation. Objects placed in the path of an initially planar propagating wave, impeded the wave's movement due to the decreased speed of positively curved fronts after passing an object. We investigated the effect of various obstacle shapes (n-sided polygons, diamonds, ellipses) and extensions parallel (x-dimension) and perpendicular (y-dimension) to the channel and their influence on the total propagation time within the channel. We will also report on the effect of location of a defined number of obstacles within the channel, i.e., evenly spread or closer packing.

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