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The onset of activations in the oscillatory Belousov-Zhabotinsky reaction[1] HAROLD HASTINGS, SABRINA SOBEL, Hofstra University, RICHARD FIELD, The University of Montana — The unstirred, ferroin catalyzed Belousov-Zhabotinsky (BZ) is a prototype chemical system exhibiting traveling waves of oxidation in an oscillatory or excitable medium. A typical thin- layer BZ medium (approx. 2D) displays a red (reduced) induction phase lasting several minutes, followed by "spontaneous" formation of "pacemaker" centers that oscillate between red and blue states and generate target patterns of concentric, outward-moving waves of oxidation (blue) in the red medium. The origin of these pacemaker centers is not yet completely understood. This talk will describe a reduced stochastic model for the origin of pacemaker centers (extending the Oregonator of Field, Koros and Noyes) and recent work of the authors (J. Phys. Chem. A. (Letter); 2006; 110; 5-7), which reproduces experimentally observed oxidation states and nucleation rates.

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