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Zana A Coulibaly*, 1000 Hilltop Circle, Baltimore, MD 21250, and **Matthias K Gobbert** and **Bradford E Peercy**. *Initiation of intracellular calcium spiral waves in a stochastic fire-diffuse-fire model*. Preliminary report.

We investigate a mechanism that leads to the initiation of spiral waves through the use of lower dimensional approximations of a 3D stochastic fire-diffuse-fire model of intracellular calcium dynamics. From the reduced models, we are able to conduct a directed search and report a range of parameter values that have a high probability of initiating spiral patterns in the 3D model. The intrinsic appearance of such patterns is the result of an interplay between the spatial regularity in the CRUs' locations and amplitude of the calcium release. No artificial spatial heterogeneity is required. (Received January 20, 2015)