

1126-35-21

**Joceline Lega\*** ([lega@math.arizona.edu](mailto:lega@math.arizona.edu)), Department of Mathematics, 617 N. Santa Rita Avenue, Tucson, AZ 85721. *The phase structure of grain boundaries.*

I will present numerical and analytical results on grain boundaries of the Swift-Hohenberg and Cross-Newell equations. It is well known that as the angle made by the roll patterns on each side of this line defect is decreased, dislocations appear at the core of the grain boundary. Understanding this transition is an interesting problem since it provides an example of defect formation in a system that is variational and therefore more amenable to analysis.

I will show numerical results of the Swift-Hohenberg equation that aim to analyze the phase structure of far-from-threshold grain boundaries and connect these observations to properties of the associated phase diffusion equation, the regularized Cross-Newell equation.

This work is part of a long-term project whose goal is to understand the role played by phase derivatives in the creation of defects in pattern forming systems, and is joint with Nick Ercolani and Nikola Kamburov. (Received November 21, 2016)