# Models of shrinking clusters with applications to epidermal wound healing

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Abstract
Models of growing clusters, such as the Eden model and Diffusion Limited Aggregation (DLA), have been widely used to describe a variety of natural growth processes. In this paper, we develop models of shrinking clusters which we use to model epidermal wound healing. We present two approaches to modeling shrinking clusters. In the first approach, which is motivated by the Eden model, every point on the cluster periphery has equal chance of being healed. Noisy and noisefree versions of this model are investigated. In the second approach, DLA is employed in a unique way so that random walkers launched from infinity eventually reach the cluster and contribute to its reduction. Simulation results are presented which illustrate the evolution of the wound healing process for various wound shapes.

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