

## **Chronic ischemic wounds: a mathematical model and experiments**

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**Abstract:** Chronic wounds represent a staggering public health problem, affecting 6.5 million people annually in the U.S. Quite often the vasculature supporting the epidermis is degraded causing ischemic conditions, which impair healing. I will report on recent in vivo experiments with ischemic wounds that were developed on the back of a porcine, and a mathematical model that predicts the same results. The mathematical model replaces the complex wound microenvironment of the experiment with a simpler circular geometry by using ideas from homogenization theory. The model is formulated in terms of a system of partial differential equations with a free boundary, which is the boundary of the wound surface.

*This is a joint work with Chuan Xue and Chandan Sen*