

Nutrient-driven Tumor-growth Phase-field Model

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From experimental evidences on tumor growth, as well as former studies on the field, we present a theoretical model of a nutrient-driven 2D growing tumor. It is accompanied by an analytical and a numerical study of the model in question. The analytical study reflects the stability of the tumor interface for small perturbations, and predicts growth for large nutrient density. The numerical results reflect preferential growth to the part with more nutrients and a firebreak behaviour in the lower density zones. Moreover, we observe saturation for a low enough nutrient density, as expected.