Analysis of Cahn-Hilliard-Brinkman models for tumour growth

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Tumour growth models have been successful in describing many phenomena relevant for medical applications. We will introduce phase field systems for tumour growth by coupling the Cahn-Hilliard equation to a diffusion equation for a nutrient. In addition, also a coupling to flow equations of Darcy-, Stokes- and Brinkman-type are discussed. We will present existence and uniqueness results, study sharp interface limits and briefly discuss patient specific parameter estimation using reduced order modeling.

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References

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