

Partial differential equation models of cancer dynamics and tumour growth .

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A range of mathematical models have been developed and used to gain a more in-depth theoretical understanding of different aspects of cancer dynamics and tumour growth. In these two talks, a (very) short introduction to deterministic, continuum models formulated as partial differential equations will be given through a few case studies. The first talk will focus on reaction-diffusion equations with non-local reaction terms modelling the adaptation of cancer cells to their environment. In the second talk, attention will turn to models of tumour growth and cancer invasion that comprise nonlinear diffusion and reaction-diffusion equations. Analytical and numerical results summarising the behaviour of the solutions to the model equations will be presented and the biological insight generated by these results will be briefly discussed.