

## Variations on the Gatenby-Gawlinski model for acid-mediated tumour growth

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For evident reasons, Cancer Biology is one of the most challenging topics of current medical research and understanding the mechanism behind its uncontrolled growth is a crucial issue. Among other explanations of the process, the Warburg effect posits that a pivotal role is played by the so-called aerobic glycolysis, i.e. the fact that, even in presence of oxygen, lactic acid fermentation can be favoured by tumour cells, enhancing their metabolism and, as a consequence, the invasive features.

The aim of the talk is to present a mathematical model for such a phenomenon, in the form proposed in 1996 by Robert A. Gatenby and Edward T. Gawlinski, based on a system of reaction-diffusion equations and discusses some of its most significant properties, including the computational evidence of the existence of propagation fronts. Time permitting, I will also discuss other complementary items such as the existence of fronts for simplified models, stability (dynamic and structural), heterogeneity, homogenisation...

Collaborations with Irene Anello, Thierry Gallay, Pierfrancesco Moschetta, Donato Pera, Elisa Scanu, Chiara Simeoni (variable subgroups...).

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