CIME Course on

From a Microscopic to a Macroscopic Description of Complex Systems

Bedlewo (Poland) - September 4-9, 2006

Modelling Tumor Growth

Lecturer: Mark Chaplain

Outline:

1. Mathematical modeling of avascular tumour growth
2. Mathematical modeling of the immune response to cancer
3. Mathematical modeling of angiogenesis
4. Mathematical modeling of cancer invasion of tissue
5. Mathematical modeling of chemotherapy and radiotherapy treatment

Reference

H.M. Byrne, M.A.J. Chaplain, *Growth of non-necrotic tumours in the presence and absence of inhibitors* (1995) Math. Biosci. 130, 151-181.

H.M. Byrne, M.A.J. Chaplain, *Growth of Necrotic Tumours in the Presence and Absence of Inhibitors* (1996) Math. Biosci. 135, 187-216.

A.R.A. Anderson, M.A.J. Chaplain, *Continuous and discrete mathematical models of tumour-induced angiogenesis* (1998) Bull. Math. Biol. 60, 857-899.

S.R. McDougall, A.R.A. Anderson, M.A.J. Chaplain and J.A. Sherratt, *Mathematical modelling of flow through vascular networks: Implications for tumour-induced angiogenesis and chemotherapy strategies* (2002) Bull. Math. Biol. 64, 673-702.

A. Matzavinos, M.A.J. Chaplain, V. Kuznetsov, *Mathematical modelling of the spatio-temporal response of cytotoxic T-lymphocytes to a solid tumour* (2004) Math. Med. Biol. 21, 1-34.