Department of Applied and Computational Mathematics and Statistics Colloquium

Thomas Hillen

University of Alberta

Mathematical Modelling of Cancer Stem Cells

Cancer stem cells (CSCs) are pluripotent cancer cells, which are less sensitive to treatments, and which can generate new tumors once transplanted into a healthy tissue. Mathematical modelling of CSCs has contributed to our increased understanding of CSC dynamics. The dominating effect in these models is the tumor growth paradox. It says that a tumor under treatment might grow larger than a similar tumor without treatment. Using geometric singular perturbation methods, we prove mathematically that such a tumor growth paradox can arise. In the spatial context, it leads to a tumor invasion paradox, as we will explain. Many of the models presented here lead to interesting mathematical questions.

Wed, Oct. 11, 2023
3:45 – 4:45 PM
127 Hayes-Healy Center

Colloquium Tea – 3:15 PM in 101A Crowley Hall