**MARK LEWIS**, University of Alberta

*Spread and persistence of competitive species in advective flows*

My talk will focus on mathematics inspired by biological problems involving multispecies competitive spread and persistence in advective flows. The biological problems are: movement of vegetation in response to climate change, and persistence of populations in rivers. In the analysis of these problems, I will connect the classical critical domain size problem with the theory of spread rates and travelling waves. I will finish with some recent work on the role of disease in the historical spread of competing species.

Some of the research is in collaboration with Frithjof Lutscher, Paul Moorcroft and Alex Potapov.