1163-35-1396 **Mark Alun Lewis*** (mark.lewis@ualberta.ca), Dept Math/Stat Sciences and Dept Biological S, 632 CAB, University of Alberta, Edmonton, AB T6G 2G1, Canada. *Population Dynamics in Moving Environments.*

Classical population dynamics problems assume constant unchanging environments. However, realistic environments fluctuate in both space and time. My lecture will focus on the analysis of population dynamics in environments that shift spatially, due either to advective flow (eg., river population dynamics) or to changing environmental conditions (eg., climate change). The emphasis will be on the analysis of nonlinear advection-diffusion-reaction equations and related models in the case where there is strong advection and environments are heterogeneous. I will use methods of spreading speed analysis, net reproductive rate and inside dynamics to understand qualitative outcomes. Applications will be made to river populations in one- and two-dimensions and to genetic structure of populations subject to climate change as well as to small-scale experimental systems that have been developed to test the mathematical theory. (Received September 15, 2020)