1116-92-1308 **Daniel Coombs*** (coombs@math.ubc.ca). *Interpretation and modelling with super-resolution microscopy.*

New microscopic imaging techniques yield precise positional information of fluorescent markers down to the scale of tens of nanometers and provide beautiful qualitative images of cellular structures. In this talk I will discuss our ongoing work with one such technique, Stochastic Optical Reconstruction Microscopy. I will describe the technique, highlighting a particular challenge to obtaining quantitative information from the data, describe how we are addressing that challenge using a hidden Markov model, and also point out some interesting problems that are not completely resolved. The work will be illustrated using experimental data from cell-surface receptors on B cells and cardiac myocytes and I will outline how the microscopic data is informing new models of signaling in both cases. This is joint work with Alejandra Herrera, Libin Abraham and Ki-Woong Sung and members of the Edwin Moore, Keng Chou and Michael Gold labs at UBC. (Received September 18, 2015)