1063-60-228 **Lea Popovic*** (lpopovic@mathstat.concordia.ca), 1455 de Maisonneuve Blvd W, Montreal, QC H3G 1M8, Canada. *Spatial aspects of multiscale reaction networks.*

In modeling interactions between different types of molecular species (or individuals) in a population one often makes the assumption that the system is "well mixed". This is reflected in the fact that the rate at which reactions between species occur is proportional the overall number of each of the species types that are needed as inputs for the reaction. Intuitively this assumption is correct if molecular transport (or individual movement) is "much faster" than the interactions. When molecular transport is not fast enough to insure spatial homogeneity of the system, one needs to address the role of space in the evolution of the total amount of each species (individual type) in the system. I will present a model for a spatially inhomogeneous system. By making different assumptions on how fast the molecular transport (individual movement) is relative to the interactions, I will derive results for the evolution of the total amount of each species in the system, and discuss how they differ from results in a homogeneous system. This is joint work with Peter Pfaffelhuber (Freiburg). (Received August 16, 2010)