On inverse problems for several coupled PDE systems arising in mathematical Biology

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Abstract: In this talk, we will discuss how to solve inverse problems by identifying unknown coefficients in coupled PDE systems. We focus on non-negative solutions that are relevant to biology and ecology. Our new scheme involves controlling the injection of different source terms to obtain multiple sets of mean flux data, leading to unique identifiability results. We use monotonicity properties related to the system's structure and connect our findings to practical biological applications.