



Pacific Institute *for the*  
Mathematical Sciences

# PIMS UVic Site Distinguished Lecturer

Thursday, March 17, 2022

2:30 pm Pacific Time by Zoom

e-mail [pims@uvic.ca](mailto:pims@uvic.ca) to request Zoom meeting ID



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## Adventures with Partial Identification in Studies of Marked Individuals

Monitoring marked individuals is a common strategy in studies of wild animals (referred to as mark-recapture or capture-recapture experiments) and hard to track human populations (referred to as multi-list methods or multiple-systems estimation). A standard assumption of these techniques is that individuals can be identified uniquely and without error, but this can be violated in many ways. In some cases, it may not be possible to identify individuals uniquely because of the study design or the choice of marks. Other times, errors may occur so that individuals are incorrectly identified. I will discuss work with my collaborators over the past 10 years developing methods to account for problems that arise when only individuals are only partially identified. I will present theoretical aspects of this research, including an introduction to the latent multinomial model and algebraic statistics, and also describe applications to studies of species ranging from the golden mantella (an endangered frog endemic to Madagascar measuring only 20 mm) to the whale shark (the largest known species of fish measuring up to 19 m).