



# Center for Bioinformatics Research Talk

**Peter L. Ralph**

**Thursday, September 11, 2014**

**4:00pm**

**Oak Room, IMU**

## Tools for understanding the geography of adaptation

**Abstract:** I will talk about several theoretical results of how species adapt in continuous geography, and one descriptive tool designed for use on data. I aim to answer the following questions: When does a species faced with a new selective pressure adapt as a unit, and when do different solutions to the same evolutionary problem arise in parallel in different parts of the range? What about the case of a patchy environment: i.e. when should local adaptations be shared versus heterogeneous? How could we distinguish the two? These questions have surprisingly elegant answers, thanks to stochastic tools going back to Fisher and Kolmogorov. I will also describe an inference method that infers relative strengths of simple geographic distance, environmental differences, or other (e.g. resistance) distances. The latter is implemented as an open-source R module (BEDASSLE, Bradburd, Ralph and Coop).



**Biography:** Peter Ralph did his PhD working on probability and statistics at UC Berkeley with Steve Evans, followed by a postdoc with Graham Coop at UC Davis. He is now faculty in the Computational Biology and Bioinformatics group at the University of Southern California.



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