



## **PIMS-funded Biostatistics Seminar**

### **Dr. Alexander Platt**

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**May 10, 1pm– 2pm.**

**Main Campus, Math/Stats building, Room MS 431**

**Title: Age distributions of rare lineages reveal recent demographic history and selection in humans.**

### **Abstract**

There are three distinct processes that can serve as different clocks measuring the passage of time in evolutionary history. 1)Sequence divergence: as lineages diverge from a common ancestor they accumulate differences from each other proportional to a mutation rate. 2)Allele frequency trajectory: a new variant arisen through de novo mutation (or any new lineage) will see its frequency in the population rise as a function of the time between its creation and its being sampled. 3)Haplotype block length: in sexually reproducing organisms, recombination breakpoints accumulate that mark boundaries between portions of the genome with different genealogical histories and patterns of relatedness. This talk will discuss the joint properties of these clocks (conditional on a common underlying population history) and what they tell us about the recent evolutionary history of modern humans.

### **Short Bio**

Dr. Platt is a theoretical evolutionary geneticist whose research revolves around fundamental questions of what are the evolutionary mechanisms that have generated the patterns of genetic diversity we find in natural populations today. While some of his research involves evolution as an abstract mathematical model, his applied population genetics research has spanned organisms as diverse as microbes, weedy plants, massive oak trees, and humans both extant and extinct. He holds a B.A. in mathematical biology from the University of Pennsylvania and a Ph.D. in organismal and evolutionary biology from Harvard. He is currently at the University of Pennsylvania and occupied with the speciation process within humans and untangling the relationships between Neanderthals and early anatomically modern humans. He has recently been told he looks like Santa Clause.