

**Stanford University**  
**Department of Statistics**

DEPARTMENTAL SEMINAR

**The Berkeley/Stanford Joint Statistics Colloquium**

4pm, Tuesday, April 2, 2019

141 McCone Hall, UC Berkeley

Refreshments served at 3pm in the Statistics Lounge, 367 Evans Hall,  
with a reception there at 5pm following the talk.

**Speaker:** Julia Palacios, *Stanford Statistics*

**Title:** The Tajima coalescent

**Abstract:**

In this talk I will present the Tajima coalescent, a model on the ancestral relationships of molecular samples. This model is then used as a prior model on unlabeled genealogies to infer evolutionary parameters with a Bayesian nonparametric method. I will then show that conditionally on observed data and a particular mutation model, the cardinality of the hidden state space of Tajima's genealogies is exponentially smaller than the cardinality of the hidden state space of Kingman's genealogies. We estimate the corresponding cardinalities with sequential importance sampling. Finally, I will propose a new distance on unlabeled genealogies that allows us to compare different distributions on unlabeled genealogies to Tajima's coalescent.