

**University of California, Irvine  
Statistics Department  
Distinguished Speaker Seminar**

*A Bayesian Nonparametric Approach to Causal Mediation  
with Multiple Mediators*

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**4 p.m., Thursday, May 12, 2022  
6011 Donald Bren Hall**

We introduce an approach for causal mediation with multiple mediators. We model the observed data distribution using a new Bayesian nonparametric approach that allows for flexible default specifications for the distribution of the outcome and the mediators conditional on mediator/outcome confounders. We briefly explore the properties of this specification and introduce assumptions that allow for the identification of direct and both joint and individual indirect effects. We use this approach to examine the effect of antibiotics as mediators of the relationship between bacterial community dominance and ventilator associated pneumonia and conduct simulation studies to better understand the frequentist properties of our approach.

Joint work with Samrat Roy (UPenn), Jason Roy (Rutgers), and Brendan Kelly (UPenn)