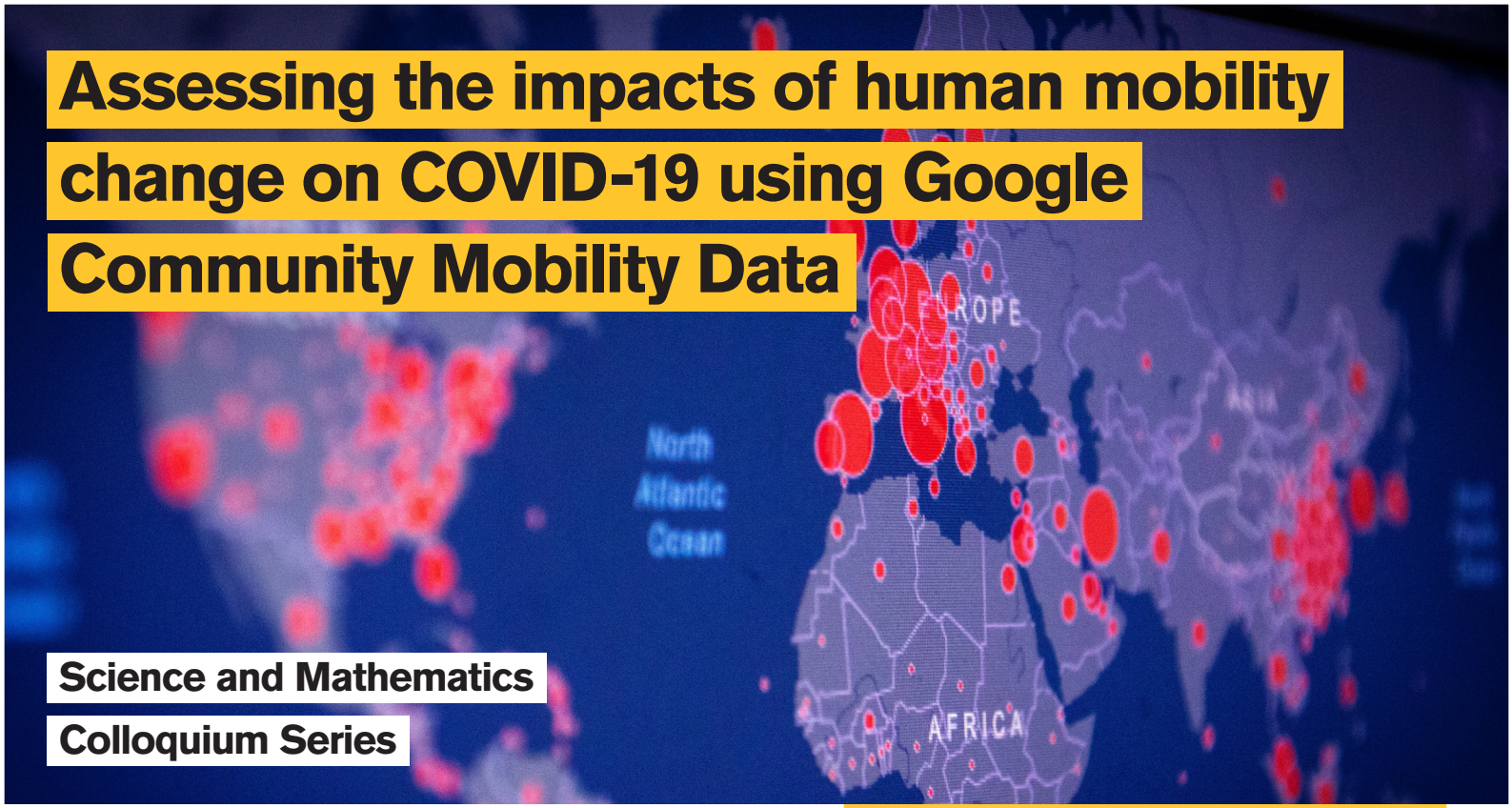
Assessing the impacts of human mobility change on COVID-19 using Google Community Mobility Data



Science and Mathematics Colloquium Series

Wed., March 31, 3:30 p.m.

Zoom link: http://links.asu.edu/science-math

In June 2020, Arizona emerged as one of the world's worst COVID-19 spots after the stay-at-home order was lifted in the middle of May. However, with the decision to reimpose restrictions, the number of COVID-19 cases has been declining, and Arizona is considered to be a good model in slowing the epidemic. Wanting to examine the COVID-19 situation in Arizona and assess the impact of human mobility change, Yamamoto's team constructed a mobility integrated meta-population susceptible-infectious-removed model and fitted to publicly available datasets on COVID-19 cases and mobility changes in Arizona. Their simulations showed that by reducing human mobility, the peak time was delayed, and the final size of the epidemic was decreased in all three regions.

Their analysis suggests that rapid and effective decision making is crucial to control human mobility and, therefore, COVID-19 epidemics. Until a vaccine is available, reimplementations of mobility restrictions in response to the increase of new COVID-19 cases might need to be considered in Arizona and beyond.

Questions? Contact Steven.Saul@asu.edu

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Nao Yamamoto is a second-year PhD student in the Simon A. Levin Mathematical, Computational and Modeling Sciences Center at ASU. Before coming to Arizona, she earned a Master of Public Health from Hokkaido University, focusing on infectious disease modeling. She holds a BSc in mathematics from the University of British Columbia. Her research is centered on infectious disease modeling; she uses mathematical and computational methods to analyze the dynamics of infectious diseases such as COVID-19, HIV/AIDS, and other STIs.

Faculty and practitioners discuss their current research and field projects in the Science and Mathematics Colloquium Series, held throughout the academic year at ASU's Polytechnic campus. All seminars are free and open to the public.