

ES SEMINAR SERIES

12:30-1:30 pm
09/22/2021
SSB 160 / [Zoom](#)

Samuel Markolf

*Toward Social-Ecological-Technological
Resilience in a Changing World*



Abstract: We are living in a world increasingly defined by pervasive and accelerating climatic, technological, social, economic, and institutional change. These convergent changes portend a wide range of possible impacts to our urban, ecological, and infrastructure systems. In response, the concept of *resilience* – the ability of systems and communities to identify, anticipate, alleviate, prepare for, respond to, and recover from large-scale changes – has emerged as way to navigate the complexity, uncertainty, and potential disruptions associated with a rapidly changing world. With growing exploration and implementation of resilience, fundamental questions arise about how, when, where, and in what form it should be pursued. As an introduction to resilience as the theme of this year’s seminar, this talk will outline some of these broader questions and provide an overview of some of the tenets of resilience from an engineering and social-ecological perspective. Dr. Markolf will then highlight elements of his recent work applying resilience thinking to engineering applications and social-ecological-technological systems (SETS). Ultimately, the talk aims to leave attendees with a clearer understanding of varying perspectives on resilience, ways in which resilience is being explored in research and practice, and prospects of applying resilience thinking in different contexts. Papers links: [1](#), [2](#).



Bio: Dr. Samuel (Sam) Markolf is an Assistant Professor within the Department of Civil and Environmental Engineering at UC Merced. Prior to joining UC-Merced, Sam was a Research Fellow on the NSF-sponsored Urban Resilience to Extremes Sustainability Research Network (UREx SRN) at Arizona State University. Broadly, his research applies systems thinking to sustainability and resilience challenges facing cities and infrastructure systems. Example projects include examining impacts and responses to extreme events (e.g., flood, wildfire) within transportation systems, exploring the incorporation of climate projections into infrastructure design processes, and analyzing the extent to which interconnected social-ecological-technological systems (SETS) can enhance (or hinder) the resilience of cities and infrastructure systems.