2018 Awardees of the COTS Early Career Grants

Dr.Timothy Beng

Dr. Timothy Beng, Assistant Professor of Organic Chemistry, will write a paper for the *Journal of American Chemical Society* on the chemical structure challenges of developing and designing new synthetic drugs that will affect difficult-to-cure diseases. Specifically, the authors will construct a library of compounds and collaboratively perform a structure-activity relationship study, in view of finding alternative treatments for leishmaniosis.

Dr. Nathan J. Kuwada, Assistant Professor of Physics, will write a journal article regarding the physical role of the chromosome in the dynamic, cellular-scale structure of the bacterial cell. Many essential cellular processes rely on components being in specific places at specific times, but the physical mechanisms behind this high level of organization remain largely uncharacterized. Beyond its critical genetic role, there is strong evidence that the dynamic nature of the chromosome may be an essential driver of spatiotemporal structure within the cell. This emerging model of chromosome-mediated organization may connect many seemingly disparate biophysical phenomena and lead to a deeper understanding of cellular-scale structure.

Dr. Nathan J. Kuwada

Dr. Jessica Mayhew

Dr. Jessica Mayhew, Assistant Professor of Anthropology, will submit a manuscript to the *American Journal of Primatology* on the social play networks of Tibetan macaques, specifically examining the dynamics of the social relationships between infants and juveniles and how these relationships change across time. Such studies are important to better understand how play contributes to the development of social relationships, an individual's social integration into the larger group, and the acquisition of physical, cognitive, and social skills.

Dr. Sarah Samblanet, Assistant Professor of Sociology, will write a paper drawing on identity theory in sociological social psychology, we investigate emotion as a key component of identity processes. The project tests the theoretically relevant linkages between structural and perceptual social psychological components of identity (prominence, commitment, attribution) and emotions (presence, frequency, and intensity of both negative and positive emotions).

Dr. Benjamin White

Dr. Benjamin White, Assistant Professor of Physics, will write a paper on the development of new materials that could potentially be used in magnetic refrigeration applications. Magnetic refrigeration is a non-toxic, environmentally-friendly alternative to traditional gas-compression refrigeration, but materials with suitable properties must be identified or discovered in order to construct an efficient magnetic refrigeration system. In his paper, Dr. White will describe a study of the properties of materials that could potentially be considered for use in such devices.