



COLLOQUIUM

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**Interactions among mTORC, AMPK, and SIRT:
A Computational Model for Metabolism and Circadian
Clock**

Friday November 20th at 3pm on Zoom

<https://csuohio.zoom.us/j/91945126460>

Bio: Mehrshad Sadria is a MMath candidate in the Department of Applied Mathematics of the University of Waterloo. He received a bachelor's degree in Physics from Shahid Beheshti University in 2017. His primary interest is in mathematical modeling and analysis of complex systems. Specifically, he employs computational biology and bioinformatic methods to decipher the complex interactions among subcellular substrates.

Abstract: Ageing is associated with impairments in a number of regulatory processes, including in energy deregulation that affects multiple metabolic pathways and in the circadian rhythms. In the management of metabolic stress and ageing mechanisms, key proteins such as mTORC, AMPK, and sirtuins are known to play an essential role. An impairment in these mechanisms is commonly associated with cellular ageing and degenerative diseases. To understand the complex interactions of ageing-related signalling pathways and environmental signals, and the impacts on lifespan and health-span, we developed a computational model of ageing signalling pathways. The model can be used as an essential component to simulate gene manipulation, therapies (e.g., rapamycin and wortmannin), calorie restrictions, and chronic stress, and to assess their functional implications on longevity and ageing-related diseases.