

---

**MATHEUS GRASSELLI**, McMaster University

*A Tale of Two Regions: A North and South Macroeconomic-Ecological Model*

In this talk, I will describe an extension of the GEMMES climate-economic model proposed in Bovari et al. (2018a) that considers two regions, a Global North and a Global South, interacting through trade. Each region decides on its own carbon pricing policy and abatement subsidies independently, leading to separate paths for industrial emissions, which contribute together to the increase of atmospheric carbon concentration and global average increase in temperature. The two regions are subject to distinct damages caused by climate change, leading to separate paths for economic variables such as output and inflation. I will show a calibration of the model to data available up to 2016 and a test of the predictions up to 2024 with broad agreement for the key variables in the model. I will then investigate three different scenarios for future damages and climate policies and their effects on each of the regions, as well as a case study for financial transfers from the North to the South to help mitigate climate change. I conclude with a sensitivity analysis of the proposed model using similar techniques previously used to analyze the original GEMMES model. This is joint work with B. Badenhorst, K. Baldeo, K. Bopape, E. Kroell, and D. Presta.