

DEPARTMENTS OF CHEMISTRY

Seminar Series



FRIDAY, October 9, 2026 - 12:00 Noon
MC H313

Feedback Loops and Climate Change: The Long View



Prof. Stephen Hartman

Department of Chemistry, Brock University

e-mail: shartman@brocku.ca

The Earth's atmosphere was very different 4.6 billion years ago when the Earth formed. It had high levels of carbon dioxide and methane and no oxygen. This continued for the first 1½ billion years, until primitive single-cell life evolved a new kind of photosynthesis that produced oxygen as a byproduct. Oxygen is highly reactive, and this changed everything on Earth's surface. Eventually there was enough oxygen in the atmosphere to allow oxygen-breathing organisms including dinosaurs and humans to evolve. Life is fragile. For billions of years, Earth's atmosphere has remained in the very narrow temperature range that makes life possible. We will discuss how this happened, and how human activities are upsetting the system and putting our survival at risk.

Bio: Steve Hartman is a native of Toronto and a graduate of Queen's University in Engineering Chemistry. He did his M.Sc. at the University of Ottawa and his Ph.D. at McMaster, followed by a postdoctoral fellowship at Oxford. He came to Brock University in 1968, when the university was only four years old, and has organized and taught chemistry courses ever since, primarily inorganic chemistry and spectroscopy but also first-year chemistry and industrial chemistry. He retired from Brock in 2007 but continued to be involved in research and teaching up to 2024. He was married for 24 years and has a son and a daughter. He joined the Brock University Retirees' Association (BURA) and the Probus Club of Niagara North in 2007, and is involved with the local branches of Friendship Force International, the Torch Club, and the Royal Scottish Country Dance Society. In all of his career Steve's research has dealt with various aspects of nuclear magnetic resonance (NMR) spectroscopy, both solution and solid state.

In many years of teaching Industrial Chemistry at Brock, Steve has become more and more aware of the hazards of global warming and of the major contributions of the chemical industry to this problem. Alarm bells are ringing and we should be acting, not just talking. It is particularly difficult to deal with long-term problems in a society and political system based on short-term thinking. The transformation of Prime Minister Carney from avid environmentalist to supporter of new pipelines is a prime example. (He can be forgiven because maintaining Canada's existence while it's under threat from an unhinged neighbour must take priority and requires unpleasant compromises.)