We are delighted to invite you to an upcoming seminar as part of the School of Physics Seminar Series.

Speaker: Prof. Tomoyuki Murakami (Seikei University, Tokyo)

Date: Tuesday, 11th March

Time: 1:00 – 2:00 PM

Location: N201

Title: Mathematical analysis to clarify how reaction networks grow in plasmas.

Abstract:

In the field of plasma science and technology, it is important to understand the characteristics of complex discharge structures and chemical reaction systems. In this talk, we investigate the discharge mechanism, consisting of the propagation of streamer-like ionization waves, and the behavior of plasma chemistry by two-dimensional numerical simulations of a low-temperature plasma jet. We also propose a theoretical model to analyze the growth of plasma chemical networks. The growth mechanism of plasma chemical networks contains key features for understanding how plasmas form and how they become stable; that is, it helps to clarify how different plasma species interact with each other and what reactions they cause.

Speaker Bio:

Tomoyuki Murakami is a full professor of Faculty of Science and Technology at Seikei University, Tokyo, Japan. He also holds a visiting professorship at Queen's University Belfast, Northern Ireland, UK. He received his PhD from Tokyo Institute of Technology, Yokohama, Japan, in 1998. He was a senior research fellow at Queen’s University Belfast, NI, UK and Wesleyan University, CT, USA, in 2010 and 2013, respectively. His current research interests include theoretical and numerical modeling on gas/liquid plasma physics and chemistry, data-driven plasma sciences based on information mathematics, and computational biology for plasma medicine and plasma agriculture.