## Special Lecture

Organizer: Institute of Fluid Science, Tohoku University Sponsor: Tohoku Branch of the Japan Society of Mechanical Engineers, Tohoku Branch of the Institute of Electrostatics Japan

Date and Time: June 28, 2024 (Fri.)  $15:00 \sim 17:00$ Venue: Meeting Room (2F, IFS bldg. 1) and Online (Google Meet) (Hybrid) https://meet.google.com/xnc-vhkr-qjr

 $15{:}00{\sim}16{:}00$  Lecturer: James S. Cotton (Professor, Department of Mechanical Engineering, McMaster University, Canada)

Title: Climate Change and Our Buildings – How do we de-carbonize them? The roll of Thermal Storage

Abstract: Most of us who live in the Northern Hemisphere have a fundamental problem: we want to reduce our carbon emissions, but we also need to heat our homes. The good news is there is a way to do both by creating thermal networks. A thermal network is a system of insulated, underground pipes that directly distribute heat to homes and other buildings using heat generated from clean sources and distributed thermal batteries – even waste heat from nuclear reactors. Rather than using their own furnaces, boilers, fireplaces or electric baseboard heaters to heat buildings, consumers would receive heat directly from a utility. In this conversation I will explain how.

 $16{}^{:}00{\sim}16{}^{:}40$ Lecturer: Kuniko Urashima (Visiting Professor, Nagoya University, Institute of Innovation for Future Society)

Title: Current status of agriculture and plasma technology for building a sustainable future society

Abstract: Plasma technology has been widely put to practical use in industry, for example in environmental improvement and in semi-conductor manufacturing etc. Since the beginning of the 2000s, research and development has been active for medical treatment, CO2 emissions reduction, restoration of nitrogen cycles and improvement of agricultural productivity. In this presentation, the current status and efforts to realize a sustainable agricultural production society using plasma technology will be introduced.

\*This special lecture is organized as a part of the activities of the IFS collaborative research project.

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