

MME Seminar 2018

Session 3

Date: Thurs 29th Nov 2018
Time: 3.30 pm to 4.30 pm
Venue: MME Journal Rm (NIE7-3-16)

Application of Domain Theory to Set-theoretic Topology

By Yasunao Hattori



Yasunao Hattori will give a brief survey on certain topological aspects derived from a development of a study on domain theory. A notion of a set of formal balls is a key notion in this talk, which connects between domain theory and set-theoretic topology. A domain D is called a computational model for a topological space X if the set $M(D)$ of maximal elements of D with the relative Scott topology is homeomorphic to X , and X is said to be domain-representable if X has a computational model. Weihrauch and Schreiber introduced in 1981 the set $B^+(X; d) = X \times \mathbb{R}^+$ of formal balls in a metric space X , and showed that $B^+(X; d)$ is a computational model for a complete metric space X , i.e., every complete metric space is domain representable. The sets of formal balls were investigated by several authors, e.g., J. Blanck, A. Edalat, R. Heckmann and J. Lawson, etc., and domain-representable spaces were also studied from topological point of view, e.g., H. Bennett, D. Lutzer, W. Fleissner, K. Martin, and L. Yengulalp, etc. In the talk, Yasunao will show some results on the relationships among several topologies, including the Lawson topology and the Martin topology, on the sets of (generalized) formal balls. Then he will discuss the domain-representable spaces. Finally, he will show the behaviors of several topologies on the real line \mathbb{R} which are related to the Sorgenfrey topology.

Professor Hattori is one of the leading topologists. He has made contributions to topology in several different areas, such as Dimension theory, Generalized metric spaces, Special metrics, Extensions of continuous functions and Domain theory. He is the editors of "Houston Journal of Mathematics", "Topology and its applications", "Scientiae Mathematicae Japonicae" and "Questions and Answers in General Topology". He is now the President of Shimane University, Japan.

All are welcome!