

On some generalized ordered spaces homeomorphic to the Sorgenfrey line

Elena SUKHACHEVA
LMRS, Université de Rouen Normandie
Tomsk State University, Russia

Résumé

In this talk, we will report on two classes of topological spaces obtained as a modification of the reals and the Sorgenfrey line, following a well-known process on linearly ordered sets that leads to generalized ordered spaces.

The first one is a poset of topologies (introduced by Hattori) having the reals \mathbb{R} as the underlying point set by matching each $A \subset \mathbb{R}$ to a topological space, denoted here by $H(A)$. The space $H(A)$ is defined follows : A basis of neighbourhoods for $x \in A$ is given by the usual Euclidean neighbourhoods of x and a basis for $x \notin A$ is given by the right open intervals $[x, y[$, $x < y$, $y \in \mathbb{R}$.

Beside, we consider the class of spaces S_A , $A \subset \mathbb{R}$, defined follows : A basis of neighbourhoods for $x \in A$ is given by the right open intervals $[x, y[$, $x < y$, $y \in \mathbb{R}$ and a basis for $x \notin A$ is given by the left open intervals $]y, x]$, $x > y$, $y \in \mathbb{R}$. In particular, we characterize the sets A for which S_A is homeomorphic to the Sorgenfrey line \mathbb{S} .