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Spectral spaces; topological tools in algebra and logic

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Abstract

Spectral spaces, a broad class of (non-Hausdorff) topological spaces, have become an important tool in the topological representation of algebraic structures occurring in various areas of mathematics. These spaces constitute the topological leg of Stone's celebrated duality between distributive lattices and topology (1937). They are also at the root of the topological representation of commutative rings (via their "Zariski spectrum"); thus, they are the point of departure of Grothendieck's reformulation of algebraic geometry in the late 1950s. They also have an outstanding role in real algebraic geometry (1980s).

In this talk I will present the basic notions and properties of spectral spaces, and briefly review other, less known but quite surprising properties (e.g., quotient constructions). I will also describe the main features of the aforementioned Zariski and real spectra of rings, pointing out their role in geometry, and mention some other important examples occurring in mathematical practice (for instance, the spectra of l-groups, of normal subgroups of a group, of equivalence relations on a set, etc.)

Date : February 27, 2019
Time : 16:00
Place: IMBM Seminar Room, Boğaziçi University South Campus