CRITICAL IDEALS FOR COUNTABLE COMPACT SPACES

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In this talk, I will introduce, for each countable ordinal α, the ideal conv_α, which characterizes compact countable spaces homeomorphic to $\omega^\alpha \cdot n + 1$ with the order topology. This characterization is expressed in terms of the existence of convergent subsequences defined on sets not belonging to conv_α.

I will then discuss the structural properties of the family conv_α in the Katětov order. For limit ordinals α, I will present the associated ideals $\mathsf{conv}_{<\alpha}$, which serve as greatest lower bounds of the preceding conv_β, leading to intertwined decreasing hierarchies of ideals with different descriptive complexities.

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