RESOLVABILITY

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Let κ be a (finite or infinite) cardinal number. A topological space X is said to be κ-resolvable (resp. almost κ-resolvable) if there are κ dense sets in X that are pairwise disjoint (resp. almost disjoint w.r.t. the nowhere dense ideal on X). The space X is maximally resolvable iff it is $\Delta(X)$-resolvable, where

$$\Delta(X) = \min\{|G| : G \neq \emptyset \text{ open}\}.$$

In the first part of this talk we deal with the separation of various resolvability and almost resolvability properties. In the second part we describe results that deduce resolvability properties from certain topological properties. In particular, we present a recent joint result with M. Magidor that characterizes maximal resolvability of monotonically normal spaces in terms of maximal decomposability of ultrafilters. We also report on work in progress, joint with L. Soukup and Z. Szentmiklóssy, concerning the problem of Malychin that asks the following: How resolvable is a regular Lindelöf space in which every non-empty open set is uncountable?

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