Resolvable and irresolvable spaces

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A topological space is **resolvable** if it can be partitioned into two dense subsets. Otherwise, it is termed **irresolvable**.

A topological space X is considered **maximally resolvable** if it is $\Delta(X)$-resolvable, where $\Delta(X)$ is the minimum cardinality of a non-empty open subset. Examples of maximally resolvable spaces include metric, ordered, compact, or pseudo-radial spaces. However, there exist countable, dense-in-itself, irresolvable spaces.

In this presentation we investigate the resolvability of different classes of topological spaces, such as **Lindelöf, pseudocompact, countably compact,** and **monotone normal** spaces. We investigate what can we say on the resolvability of product of spaces. Although the problems seems to be purely topological, we will encounter many statements that are **independent of ZFC**, and we can not avoid mentioning **large cardinals** as well.

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