TOPOLOGY EXPANSIONS VIA SPECIFIC IDEALS

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For a topological space (X, τ), the local function $A^* = \{x \in X : A \cap U \notin \mathcal{I} \text{ for each } U \in \tau(x)\}$, where $\mathcal{I}$ is an ideal on X and A a subset of X, can be used to define an expansion τ^* of τ [1]. We describe the specific ideals which generate new topologies τ^* making certain sets open, while additionally preserving significant topological properties, i.e. regular open sets (as in [2]) or connectedness. Furthermore, we study other properties of the newly formed topology depending on the characteristics of the added sets.

References

[1] D. Janković, T.R. Hamlett, *New Topologies from Old via Ideals*, Amer. Math. Monthly, 97(4) (1990), 295-310.

[2] J. Mioduszewski , L. Rudolf, *H-closed and extremally disconnected Hausdorff spaces*, Dissertationes Mathematicae 66, Warzsawa, 1969.

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