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Idealization of continuity

Joint work with Anika Njamcul

If we, instead of closure operator $Cl(A) = \{x \in X : A \cap U \neq \emptyset \text{ for each } U \in \tau(x)\}$, use local function $A_{(\tau, \mathcal{I})}^* = \{x \in X : A \cap U \notin \mathcal{I} \text{ for each } U \in \tau(x)\}$, where \mathcal{I} is an ideal on X , then we obtain a new, finer topology τ^* on X , where O is open iff $(X \setminus O)^* \subseteq X \setminus O$. Triple $\langle X, \tau, \mathcal{I} \rangle$ is an called ideal topological space.

For a continuous (open, closed) function $f : \langle X, \tau_X \rangle \rightarrow \langle Y, \tau_Y \rangle$ it is a question whether it will remain continuous (open, closed) in case when we replace τ_X and τ_Y with τ_X^* and τ_Y^* , respectively. We give several sufficient conditions for that and extend the result of Hamlett and Rose from 1990 in case of homeomorphism.