

Secondary looseness obstructions in topological coincidence theory

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Given two maps between smooth manifolds, can their coincidences be minimized in some sense, or even fully removed, by carrying out suitable homotopies?

Generalizing central notions of topological fixed point theory we introduce Nielsen numbers which are lower bounds for minimum coincidence numbers. Central questions: When do these two types of numbers actually agree? If they do not, can we measure the difference by additional invariants ('secondary obstructions')?

We discuss many examples where the domain of our maps is a sphere. Already in some very elementary cases Kervaire invariants and all types of Hopf invariants turn out to play a crucial rôle.

Strong tools are available but many open problems remain, especially when the domain manifold is not a sphere.