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Fundamental groups of spaces that are not homotopically Hausdorff

Abstract. In attempts to generalize the classical notion of covering spaces to spaces that are not semilocally simply connected the failure of the property “homotopically Hausdorff” has turned out to be a crucial obstruction. Probably the oldest example is Griffith’s space from the fifties. The Harmonic Archipelago of Bogley and Sieradski is another example which has the additional nice property that a non-trivial image of it sits in every space that is not homotopically Hausdorff. Thus all of these spaces seem somehow to be wild, but for those spaces, which were also compact, connected and locally connected, Shelah’s result, that the fundamental group is either finitely generated or uncountable, was long time the best statement about their fundamental groups - although it was a conjecture of Cannon and Conner that for not homotopically Hausdorff spaces the case “finitely generated” cannot occur. The talk will explain how by joint research efforts this conjecture could after ten years now be confirmed.