On subgroup topologies on fundamental groups. (English) Zbl 07419731

Summary: It is important to classify covering subgroups of the fundamental group of a topological space using their topological properties in the topologized fundamental group. In this paper, we introduce and study some topologies on the fundamental group and use them to classify coverings, semicoverings, and generalized coverings of a topological space. To do this, we use the concept of subgroup topology on a group and discuss their properties. In particular, we explore which of these topologies make the fundamental group a topological group. Moreover, we provide some examples of topological spaces to compare topologies of fundamental groups.

MSC:
57M10 Covering spaces and low-dimensional topology
57M12 Low-dimensional topology of special (e.g., branched) coverings
57M05 Fundamental group, presentations, free differential calculus
55Q05 Homotopy groups, general; sets of homotopy classes

Keywords:
semicovering; generalized covering; topological group; Spanier topology; Whisker topology; Lasso topology; subgroup topology

Full Text: DOI

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