

## Geometric connectivity and generalizations

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*Session: 12. Geometry and Topology of Manifolds*

In the 80's V. Poenaru studied a non-compact version of the *geometric connectivity* previously defined by Wall, introducing also the idea of killing 1-handles stably, in order to understand the topology at infinity of open 3-manifolds. In particular, he proved that if the product of an open simply connected 3-manifold with a ball is GSC (*geometrically simply connected*), then the manifold is *simply connected at infinity* (SCI).

There are several generalizations of the GSC and of the SCI, that assure the tameness of the end of manifolds, such as the Tucker property, the *weak geometric simple connectivity* (WGSC), the missing boundary condition and the it quasi-simple filtration (QSF), that are closely related to each other.

In the present talk, I will review all these topological tameness conditions together with their mutual relationships. Then, I will also show how to extend Poenarus result for manifolds that are not simply connected.