



Thematic Session

Session title: Wild algebraic & geometric topology

Organizers:

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Description of the topic:

The investigation of algebraic invariants of non-tame [in particular: non-triangulable, non-manifold] spaces has long time been neglected in algebraic topology. This has changed at the beginning of the nineties, when the first research groups started systematic investigations in this direction. The long-term aim of this research is trying to use methods of Algebraic Topology for the study of these so-called “wild spaces”. The up to this moment achieved results show that it is possible, in particular with the methods of geometric topology, to understand the reasons, why sometimes the classical invariants lead to unexpected results. The lines of research are currently:

- [a] to compute the fundamental and homology groups for some enlightening examples,
- [b] to understand the groups that result as algebraic invariants in such cases in particular by combinatorial descriptions,
- [c] to investigate the natural topologies on the resulting algebraic invariants,
- [d] to make covering-space theory applicable for these kinds of spaces,
- [e] investigations of relevant aspects of non-tame spaces by methods of geometric topology such as embedding problems – and also
- [f] to propose variations in the definitions of classical algebraic invariants to make these invariants behave more natural with respect to wild algebraic spaces.

This line of active research has held its first meeting two years ago in Strobl, Austria [http://dmg.tuwien.ac.at/nfn/wild_top/], and has active research groups in Germany, Poland, Austria and abroad. The proposed session is intended to continue the tradition of the Strobl-meeting.

2011 Mathematic Subject Classification:

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