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The Orbifold Construction

Orbifolds were originally defined as differentiable manifolds with singularities that can be described as quotients of an open subset of Euclidean space by the action of a finite group. Orbifolds have proved their usefulness in various contexts and today we have analytic, algebraic, topological, and differentiable orbifolds. This leads us to ask the following questions:

- what kind of results are applicable to all orbifolds?
- in what kind of categories can one define orbifolds?
- is there an orbifold construction?
- is there a natural class of orbifold morphisms?

We will begin to answer these questions from an abstract categorical view point, but we will also describe some of the concrete geometrical consequences.

This is joint work with Robin Cockett from the University of Calgary.