**Wouter van Limbeek**

**Research interests:**

My research focuses on group actions on manifolds and other geometric objects. These occur everywhere in geometry and topology, and their study offers a rich interplay between differential geometry, geometric topology, geometric group theory and Lie theory. A very general problem in this context is to relate the geometry of a manifold $M$ and the algebraic structure of groups acting on $M$. For instance, if $M$ is a given manifold, which groups $G$ can act on $M$ isometrically (with respect to some Riemannian metric)? Preserving a volume form? Such that a lattice acts properly discontinuously and cocompactly?

Inspired by work of Farb and Weinberger, I recently proved that if $M$ is a closed Riemannian manifold such that the isometry group of the universal cover $\mathrm{Isom}(\widetilde{M})$ is connected and noncompact, then a finite cover of $M$ is a fiber bundle over a locally homogeneous space associated to $\mathrm{Isom}(\widetilde{M})$. Equivalently, if a connected Lie group acts properly on a simply connected manifold $X$ such that a lattice $\Gamma$ acts freely and cocompactly, then a finite cover of $X/\Gamma$ is a fiber bundle over a locally homogeneous space.

Currently I am investigating possible generalizations of this result to situations where $G$ does not preserve a Riemannian metric, but a different geometric structure (e.g. a pseudo-Riemannian metric or a conformal structure).