Tim Steger — Research Interests

My collaborators and I have worked a lot on **irreducible unitary representations** of **non-abelian free groups**. Usually, these are representations weakly contained in the regular representation. The most interesting work has had to do with the possible realizations of an abstract representation as an L^2-space on the boundary of the group. Principle objectives have been to construct the representations (rather easy) and to prove them irreducible (much harder). Recent work aims to extend some of this work to more general **hyperbolic groups**.

With mostly different collaborators, I have done analysis of various sorts on **locally finite affine buildings**. There have also been several projects classifying groups acting simply transitively on the vertices of affine buildings. Very often the buildings have been of type $\tilde{A}_2$.

Finally, with another group of collaborators, I have helped construct the list of all the **fake projective planes**.