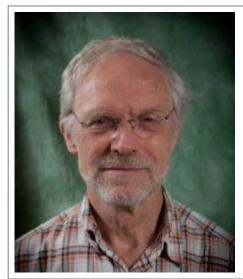
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Robert Bieri

Visiting Professor Ph.D., 1972, ETH Zürich At Binghamton since 2010

Areas of Interest: Geometric, homological, combinatorial and asymptotic methods in group theory.

Summary of research interests

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My Course in Binghamton, Fall 2016: Topics on infinite groups (the Cayley graph and beyond)

Let G be a group generated by a finite set X of its elements. The Cayley graph $\hat{\parallel} = \hat{\parallel} (G,X)$ is the colored graph defined as follows: the vertices of $\hat{\parallel}$ are the elements of G; the elements of X are the colors, and two vertices g and g' are connected by an edge of color x if g' = gx. The course is designed for graduate students in their third year. I will assume that the audience went through introductory courses on $\hat{\parallel} groups \hat{\parallel} groups \hat{\parallel}$

The idea is

- 1. to offer a range of examples of groups and techniques revolving around the Cayleygraph of finitely generated infinite groups,
- 2. to use the special case of metabelian groups to link the geometric Cayley graph view-point with commutative algebra and tropical geometry, and
- 3. to explain and use some elementary topological and homological techniques and show how they are used to extend consideration of the Cayley graph $\hat{I}_{\square}(G,X)$ to the Cayley complex $\hat{I}_{\square}(G,X,R)$ of a presentation $G = \langle X ; R \rangle$ and beyond.

Here's a link to my previous rather outdated personal web page.

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