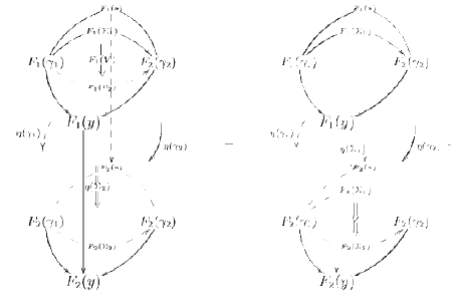


Dorette Pronk

Algebra and Category Theory



Dr. Pronk's research is in **category theory** and **homotopy theory**, with applications to **orbifolds**. **Category Theory** provides the algebraic structure needed to study the calculus of maps between objects of the same type, such as groups and group homomorphisms, or of topological spaces and continuous maps. In the latter case we can add a further structure of homotopy between maps which would lead to the structure of a 2-category. Her research in category theory primarily focusses on the following aspects:



- Higher categories and algebraic models of higher homotopy types.
- Localizations of higher categories.
- Higher restriction categories.

Orbifolds are used to study objects that have a local symmetry that is finite, even though the global symmetry may be infinite. Orbifolds have applications within various parts of mathematics and in theoretical physics and crystallography. Dr. Pronk's research on orbifolds focusses primarily on their homotopy theory and related questions; specifically,

- Categorical descriptions of orbifolds that help us to describe and study the maps between orbifolds; descriptions we have used so far include Lie groupoids and a particular type of restriction categories.
- Extending invariants from equivariant homotopy theory into invariants for orbifold homotopy theory.
- Study the tangent structure on an orbifold.



For more information, contact:

Dr. Dorette Pronk

pronk@mathstat.dal.ca

dal.ca/mathstat



DALHOUSIE
UNIVERSITY

MATHEMATICS
AND STATISTICS