



Invited Speaker

Dr. François G. Dorais

University of Vermont

“Formal Methods in Undergraduate Mathematics”

Tuesday, October 30, 2018 • Smith Hall 516 • 3:30pm

Abstract

Recent years have seen major developments in computer assisted formal methods in mathematics. Proof assistants such as Agda, Coq, Isabelle, Lean, HOL Light, Mizar are becoming more and more accessible for everyday use, even by mathematicians with little to no computer science background. These advances are opening new doors for integrating such tools in mathematics research as well as mathematics education.

I will discuss an ongoing project where a team of mathematics students at the University of Vermont are building a library of theorems from their mathematics courses for the Lean proof assistant. After just a few months of work, our team has already formalized more than half of a standard course in linear algebra. Through demonstration, we will see how theorem proving in Lean works and what kind of work is involved in such a project. Time permitting, I will also discuss ideas on integrating proof assistants in the classroom.

This research is joint work with Vanessa Myhaver, Anne Marie Stupinski, and Helene Thomas.