

## ***LOGIC SEMINAR***

**Guest Speaker: Andrey Morozov**  
**Sobolev Institute of Mathematics and**  
**Novosibirsk State University**

**Date:** Tuesday, March 3, 2020

**Time:** 2:00 PM

**Location:** 125 Hayes-Healy Hall



### ***Lecture Title:***

**On mutual definability of operations on fields (joint work with R. M. Korotkova and O. V. Kudinov)**

#### ***Abstract***

We study the possibilities of defining some operations on fields via the remaining operations. In particular, we prove that multiplication on an arbitrary field can be defined via addition if and only if the field is a finite extension of its prime subfield. We give a sufficient condition for the nondefinability of addition via multiplication and demonstrate that multiplication and addition on the reals and complexes cannot be mutually defined by means of the relations with parameters which are preserved under automorphisms. We also describe the mutual definability of addition, multiplication, and exponentiation via the remaining two operations.