

## ***GRADUATE STUDENT SEMINAR***

**Guest Speaker: Pavel Mnev**

**University of Notre Dame**

**Date:** Thursday, February 17, 2022

**Time:** 2:00 PM

**Location:** 125 Hayes-Healy Hall

**Zoom URL:** [notredame.zoom.us/j/93888654312](https://notredame.zoom.us/j/93888654312)



***Lecture Title:***

**On the Fukaya-Morse  $A$ -infinity category**

***Abstract***

I will sketch the construction of the Fukaya-Morse category of a Riemannian manifold  $X$  -- an  $A$ -infinity category (a category where associativity of composition holds only "up-to-homotopy") where the higher composition maps are given in terms of numbers of embedded trees in  $X$ , with edges following the gradient trajectories of certain Morse functions. I will give simple examples and explain different approaches to understanding the structure and proving the quadratic relations on the structure maps -- (1a) via homotopy transfer, (1b) effective field theory approach, (2) topological quantum mechanics approach. (Maybe a subset of this, depending on time.) The talk is based on a joint work with O. Chekeres, A. Losev and D. Youmans, arXiv:2112.12756.