Course description

In chromatic homotopy theory, one explores the link between the arithmetic of formal groups and the stable homotopy theory; we will focus on those aspects of this relationship which are visible at finite height.

After reviewing the basics of complex oriented cohomology theories, we will focus on the local structure of the moduli of formal groups and discuss how it is reflected and the topological side through the Lubin-Tate spectrum and the action of the Morava stabilizer group. We will study the structure and cohomology of the latter, and describe how it controls the behavior of the stable homotopy theory depending on the prime and height. Further choice of topics will depend on the interests of participants.

Teaching Staff

Piotr PstrÄ…gowski (piotr@math.harvard.edu)

Meeting time

The lectures will be held remotely on Wednesdays and Fridays 3:00-4:15PM EST. The first class will happen on January 27.

The Office Hours are on Thursdays, 1PM EST or by appointment. (Please do not hesitate to reach out! I'd be really excited to talk to you.)

Notes

The current set of notes is here.

Working remotely

Like all other classes in the spring term, this course will be conducted remotely. The lectures will be held on Zoom, and a recording will be available on Canvas in Panopto.

Evaluation

There will be an oral exam at the end in the form of a free-flowing conversation with the instructor about the contents of the course.

The exam will take place on Thursday, May 6. You should sign up for a specific time-slot here.

Prerequisites

Preferably, participants should have knowledge of the formal properties of the stable homotopy category.