

UBC Number Theory Seminar: December 1, 2021

Speaker: Ellen Eischen (University of Oregon)

Title: p -adic aspects of L -functions, with a view toward Spin L -functions

Abstract: The study of p -adic properties of values of L -functions dates back to Kummer's study of congruences between values of the Riemann zeta function at negative odd integers, as part of his attempt to understand class numbers of cyclotomic extensions. After Kummer's ideas largely lay dormant for over a half century, Iwasawa's conjectures about the meaning of p -adic L -functions led to renewed interest, and Serre's discovery of p -adic modular forms opened up a new approach to studying congruences between values of L -functions, forming the foundation for continued developments today.

With a viewpoint that encompasses several settings, including modular forms (on GL_2) and automorphic forms on higher rank groups, I will introduce p -adic L -functions and a recipe for constructing them, which relies partly on properties of Fourier coefficients of modular (and automorphic) forms. Along the way, I will introduce several recent developments and put them in the context of constructions of Serre, Katz, and Hida. As an example of a recent application of these ideas, I will discuss the results of a paper-in-preparation, joint with G. Rosso and S. Shah, on p -adic Spin L -functions of ordinary cuspidal automorphic representations of GSp_6 associated to Siegel modular forms.