

February 8: Tasho Kaletha (University of Chicago), “Depth-zero local Langlands correspondence and endoscopic transfer.” Followed by dinner.

The local Langlands correspondence seeks to parameterize the smooth irreducible representations of a reductive group G over a local field F in terms of Langlands parameters—objects closely related to representations of the Galois group of F . Each parameter is supposed to correspond to a finite set of representations of G , called an L-packet. Whenever H is an endoscopic group of G and Π_H is a tempered L-packet on H which transfers to an L-packet Π_G on G , one expects that a certain linear combination of the characters in Π_H (the stable character of Π_H) matches a certain linear combination of the characters in Π_G (the unstable character of Π_G). These matchings are known as the *endoscopic character identities*. They are instances of the broad principle of Langlands functoriality and play an important role not only in representation theory, but also in number theory, via the stabilization of the Arthur-Selberg trace formula.

In this talk, we will motivate the problem that the theory of endoscopy addresses, and then formulate the precise statement of the endoscopic character identities, after recalling the necessary notions from the local Langlands correspondence. We will then discuss their proof for the depth-zero supercuspidal L-packets recently constructed by DeBacker-Reeder. The main technical tool involved is Waldspurger’s work on endoscopy for p -adic Lie algebras, which ultimately rests on the fundamental lemma.