

Abstract

We construct p -adic L -functions associated with p -refined cohomological cuspidal Hilbert modular forms over any totally real field under a mild hypothesis. Our construction is canonical, varies naturally in p -adic families, and does not require any small slope or non-criticality assumptions on the p -refinement. The main new ingredients are an adelic definition of a canonical map from overconvergent cohomology to a space of locally analytic distributions on the relevant Galois group, and a smoothness theorem for certain eigenvarieties at critically refined points.