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**Tony Feng** and **Jonathan Wang\*** (jpwng@mit.edu). *Geometric Hecke periods*. Preliminary report.

One of the most foundational constructions of an automorphic  $L$ -function is Hecke's construction of the standard  $L$ -function of a modular form using period integrals. While the period integral is classically studied by evaluating at cuspidal eigenforms, in the geometric Langlands program the period functional can be interpreted, via the functions sheaves dictionary, as a certain sheaf or D-module on the moduli stack of rank 2 vector bundles. In this setting, we can interpret the spectral decomposition of the period as a certain ind-coherent sheaf on the stack of rank 2 local systems. In work in progress with Tony Feng, we establish this spectral decomposition in a way that reflects the underlying relative Langlands duality. (Received January 19, 2021)