Double descent for classical groups

Abstract:

We consider the generalized doubling integrals of Cai, Friedberg, Ginzburg and Kaplan. These generalize the doubling method of Piatetski-Shapiro and Rallis and represent the standard L-function for pairs of irreducible, automorphic, cuspidal representations $\pi$ - on a (split) classical group $G$, and $\tau$ - on $GL(n)$. The representation $\pi$ need not have any particular model (such as a Whittaker model, or a Bessel model). These integrals suggest an explicit descent map (an inverse to Langlands functorial lift) from $GL(n)$ to $G$(appropriate $G$). I will show that a certain Fourier coefficient applied to a residual Eisenstein series, induced from a Speh representation, corresponding to a self-dual $\tau$, is equal to the direct sum of irreducible cuspidal representations $\sigma \otimes \sigma'$ on $G \times G$, where $\sigma$ runs over all irreducible cuspidal representations, which lift to $\tau$ (i.e., $\sigma'$ is the complex conjugate of an outer conjugation of $\sigma$). This is a joint work with David Ginzburg. https://weizmann.zoom.us/j/98304397425