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THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE  
Algebraic Geometry and Representation Theory Seminar

on Wednesday, Aug 12, 2020 at 16:30

ZOOM: [HTTPS://WEIZMANN.ZOOM.US/J/98304397425](https://weizmann.zoom.us/j/98304397425)

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On automorphic descent from  $GL(7)$  to  $G_2$

Abstract:

In this talk, I will introduce the functorial descent from cuspidal automorphic representations  $\pi$  of  $GL_7(\mathbb{A})$  with  $L^S(s, \pi, \wedge^3)$  having a pole at  $s=1$  to the split exceptional group  $G_2(\mathbb{A})$ , using Fourier coefficients associated to two nilpotent orbits of  $E_7$ . We show that one descent module is generic, and under mild assumptions on the unramified components of  $\pi$ , it is cuspidal and having  $\pi$  as a weak functorial lift of each irreducible summand. However, we show that the other descent module supports not only the non-degenerate Whittaker integral on  $G_2(\mathbb{A})$ , but also every degenerate Whittaker integral. Thus it is generic, but not cuspidal. This is a new phenomenon, compared to the theory of functorial descent for classical and  $GS_{pin}$  groups. This work is joint with Joseph Hundley.

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