



THE WEIZMANN INSTITUTE OF SCIENCE  
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE

Algebraic Geometry and Representation Theory Seminar

on Wednesday, Feb 17, 2021  
at 16:30

<https://weizmann.zoom.us/j/98304397425>

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The generalized doubling method, multiplicity one and applications.

Abstract:

The doubling method of Piatetski-Shapiro and Rallis pioneered the study of integral representations of automorphic L-functions, for cuspidal representations (generic or otherwise) of classical groups. Originating in the calculation of the Petersson inner product of the theta lift, this method has been successfully applied within the theory of the theta correspondence, and had numerous additional applications to the theory of L-functions and to arithmetic problems. Recently, the doubling method has been generalized in several aspects with interesting applications to global functoriality, automorphic descent and the study of representations of covering groups. In this talk I will survey the different components of the generalized doubling method, focusing on one of the fundamental results: Local multiplicity one, obtained recently in a joint work with Dima and Rami. I will also describe a new  $GL(c) \times GL(k)$  doubling type integral which interpolates between the integrals of Godement and Jacquet and the integrals of Jacquet, Piatetski-Shapiro and Shalika. This integral was used in order to obtain certain poles within the doubling construction. Parts of the talk are also based on a collaboration with Cai, Friedberg and Ginzburg.