

# COLLOQUIUM

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## MULTIPLICITIES IN RESTRICTION OF REPRESENTATIONS OF P-ADIC GROUPS

### [ABSTRACT]

The multiplicity of an irreducible representation of a  $p$ -adic group, when restricted to its closed subgroup containing the derived group, yields arithmetic properties of the given representation. Starting to introduce basic notions and backgrounds, we discuss the case of discrete series representations of  $GL(m, D)$  when restricted to  $SL(m, D)$ , where  $D$  is a central division algebra over a  $p$ -adic field of characteristic 0. The approach here is to use elementary facts in algebraic number theory and special properties in the local Langlands correspondence. We further extend this method to other  $p$ -adic groups with some assumptions and necessary modifications.