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*Principal nilpotent orbits and reducible principal series*

Let  $G$  be a split reductive  $p$ -adic group. In this talk, we will establish an explicit link between principal nilpotent orbits of  $G$  and the irreducible constituents of principal series of  $G$ . A geometric characterization of certain irreducible constituents is also provided. In addition, we can express the relation in terms of  $L$ -group objects.