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Rahul Krishna* (krishna@math.northwestern.edu). *On the global Gross-Prasad conjecture for orthogonal groups*. Preliminary report.

Let F be a number field, \mathbb{A} its ring of adeles, and $W \subset V$ non-degenerate quadratic spaces of rank n and $n+1$ respectively. Let $G = \mathrm{SO}_W \times \mathrm{SO}_V$; let $H = \mathrm{SO}_W$, embedded diagonally in G . Let π be an automorphic cuspidal representation of $G(\mathbb{A})$. The global Gross-Prasad conjecture, formulated some twenty years ago, postulates a striking relationship between a period integral of an automorphic form $\varphi \in \pi$ over $H(F)\backslash H(\mathbb{A})$ and the central value $L(1/2, \pi)$ of the standard L -function of π . Despite motivating much progress in the theory of automorphic periods and special values of L -functions, this conjecture has remained largely open.

In this talk, I will present a possible approach to this conjecture via a bizarre comparison of relative trace formulas. This comparison relies on two local conjectures of smooth transfer and fundamental lemma. I will explain the evidence for these local identities in cases of small n , and comment on what remains to be done. (Received August 16, 2018)