Citations | From References: 1 | From Reviews: 0

MR3366025 11F70 11F33 22E50
Anandavardhanan, U. K. (6-IIT); **Mondal, Amiya Kumar** (6-IIT)
On the degree of certain local L-functions. (English summary)
Pacific J. Math. **276** (2015), *no. 1,* 1–17.

Let π be an irreducible supercuspidal representation of $\mathrm{GL}_n(F)$, where F is a p-adic field. By a result of C. J. Bushnell and P. C. Kutzko [*The admissible dual of* $\mathrm{GL}(N)$ *via compact open subgroups*, Ann. of Math. Stud., 129, Princeton Univ. Press, Princeton, NJ, 1993; MR1204652], the cardinality of the group of unramified self-twists of π is the same as the degree of the local Rankin-Selberg L-function $L(s, \pi \times \pi^\vee)$. In this paper, the authors compute the degree of the Asai, symmetric square, and exterior square L-functions associated to π. As an application, assuming p is odd, the conductor of the Asai lift of a supercuspidal representation is computed.

These L-functions are important in number theory and their degrees often have several meaningful and important interpretations. For instance, these L-functions detect functorial lifts from classical groups [F. Shahidi, Duke Math. J. **66** (1992), no. 1, 1–41; MR1159430; D. Goldberg, J. Reine Angew. Math. **448** (1994), 65–95; MR1266747].

These L-functions are also related to the theory of distinguished representations. If π is a supercuspidal representation of $\mathrm{GL}_n(E)$, then the degree of its Asai L-function is the number of unramified characters μ of $F^\times$ for which π is μ-distinguished with respect to $\mathrm{GL}_n(F)$ [U. K. Anandavardhanan, A. C. Kable and R. Tandon, Proc. Amer. Math. Soc. **132** (2004), no. 10, 2875–2883; MR2063106].   *Çetin Ürtiş*