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Journal of Lie Theory 16 (2006) 251–270

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Symmetry of Arthur Parameters under Aubert Involution

For a generic irreducible representation π of the odd orthogonal group $\mathrm{SO}(2n + 1, F)$ over a p -adic field F , we compute the Aubert involution $\hat{\pi}$ and the corresponding L -parameter. We show that, among generic representations, only tempered representations are base points attached to A -parameters and prove that in this case the A -parameters of π and $\hat{\pi}$ are symmetric. In addition, we consider A -parameters ψ of $\mathrm{SO}(2n + 1, F)$ corresponding to certain nontempered

representations and prove that ψ and $\hat{\psi}$ are symmetric.

Keywords: Arthur parameters, Aubert involution, odd orthogonal groups over p -adic fields.

MSC: 22E50, 11F70