

Everywhere sharp estimates for the heat kernel in
compact rank-one symmetric spaces

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Abstract

We prove sharp two-sided estimates for the heat kernel in any compact Riemannian symmetric space of rank one. When the argument of this kernel consists of two almost antipodal points, the kernel has a special behaviour. This phenomenon was found earlier by the authors in the case of the Euclidean sphere. Similar results are found for a ball and a simplex. The proofs go via an estimate of the heat kernel for classical Jacobi expansions.