

**THE LAPLACE OPERATOR ON NORMAL  
HOMOGENEOUS RIEMANNIAN MANIFOLDS***V. N. Berestovskii and V. M. Svirkin*

The article presents an information about the Laplace operator defined on the real-valued mappings of compact Riemannian manifolds, and its spectrum; some properties of the latter are studied. The relationship between the spectra of two Riemannian manifolds connected by a Riemannian submersion with totally geodesic fibers is established. We specify a method of calculating the spectrum of the Laplacian for simply connected simple compact Lie groups with biinvariant Riemannian metrics, by representations of their Lie algebras. As an illustration, the spectrum of the Laplacian on the group  $SU(2)$  is found.

*Key words and phrases:* Laplace operator, spectrum, Riemannian submersion, normal homogeneous Riemannian manifold, spherical function, character, group representation.

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