



# Signature Operator

By Lambert M. Surhone

Betascript Publishing. Taschenbuch. Book Condition: Neu. Neuware - In mathematics, the signature operator is an elliptic differential operator defined on a certain subspace of the space of differential forms on a even dimensional compact Riemannian manifold, whose analytic index is the same as the topological signature of the manifold if the the dimension of the manifold is a multiple of four. It is a instance of a Dirac-type operator. A differential form of degree  $k$ , or (differential)  $k$ -form, on a smooth manifold  $M$  is a smooth section of the  $k$ th exterior power of the cotangent bundle of  $M$ . The set of all  $k$ -forms on  $M$  is a vector space commonly denoted  $k(M)$ . Differential forms provide a better definition for integrands in calculus, such as  $(x) dx$  (a '1-form') or  $(x, y, z) dx dy dz$  (a '3-form'), but their uses extend far beyond elementary calculus. In fact, the set of all forms on  $M$  (denoted  $(M)$ ) is an algebra, so some (but not all) higher dimensional forms can be obtained from lower dimensional forms via multiplication in this algebra. Moreover, there is map from  $k(M)$  to  $k+1(M)$  given by a generalization of the differential from elementary calculus. 72 pp. Englisch.



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