

ON THE SPECTRAL GEOMETRY FOR THE JACOBI OPERATORS OF HARMONIC MAPS INTO PRODUCT MANIFOLDS OF QUATERNIONIC PROJECTIVE SPACES

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ABSTRACT. We study the spectral characterization of harmonic submersions when the target manifold is $QP^n \times QP^n$.

1. INTRODUCTION

The inverse eigenvalue problem of the second order operators arising in Riemannian geometry has been studied by many authors. Among them, the Jacobi operator for a harmonic map was studied in [8,11,12,13], and that for the area functional was studied in [1,5,9]. The Jacobi operator of a harmonic map f arises in the second variation formula of the energy of the harmonic map f . This formula can be expressed in terms of an elliptic differential operator J_f (called the *Jacobi operator*) defined on the space of sections of the bundle induced from the tangent bundle of the target manifold.

The spectral characterization of harmonic Riemannian submersions among the set of all harmonic morphisms has been studied in the cases

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