

Abstract

If a Riemannian manifold admits an almost Hermitian structure, i.e., an orthogonal almost complex structure, it possesses many such structures. Thus, it is natural to look for “reasonable” criteria that distinguish some of these structures. Motivated mainly by works of E. Calabi-H. Gluck, C.M. Wood, J. Davidov-A. Ul Haq-O. Mushkarov, J. Davidov-O. Mushkarov and J. Davidov as well as other mathematicians, the thesis is devoted to the study of almost Hermitian structures determining harmonic maps of the unit tangent bundle of the manifold or from the manifold into its twistor space. Several examples illustrating the obtained results are also given.