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Eduard Chiru and **Ji-Ping Sha*** (jsha@indiana.edu), Department of Mathematics, Indiana University, Bloomington, IN 47405. *Harmonic 2-forms on cohomogeneity one 4-manifolds.*

The harmonic 2-forms on a certain of compact cohomogeneity one oriented four dimensional riemannian manifolds can be calculated. In particular, it is shown that the dimension of the space of self-dual or anti-self dual harmonic 2-forms on such manifolds is at most 1, except for the ones covered by 4-torus. This implies, for example, the manifold $CP^2 \# CP^2$ does not admit a cohomogeneity one structure. (Received February 12, 2006)