

THE SECTIONAL CURVATURE REMAINS POSITIVE WHEN TAKING QUOTIENTS BY CERTAIN NONFREE ACTIONS

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We study some cases in which the sectional curvature remains positive under the taking of quotients by certain nonfree isometric actions of Lie groups. We consider the actions of the groups S^1 and S^3 for which the quotient space can be endowed with a smooth structure by means of the fibrations $S^3/S^1 \simeq S^2$ and $S^7/S^3 \simeq S^4$. We prove that the quotient space possesses a metric of positive sectional curvature provided that the original metric has positive sectional curvature on all 2-planes orthogonal to the orbits of the action.

Key words and phrases: sectional curvature, quotient, Hopf fibration.

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