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Ryan Brown* (ryan@math.gcsu.edu), Department of Mathematics, CBX 017, Georgia College & State University, Milledgeville, GA 31061. *Fixed hypersurfaces of holomorphic \mathbb{C}^* actions on exotic complex projective spaces.*

It is unknown whether or not complex projective spaces $\mathbb{C}P^n$ admit complex structures different from their standard (Kähler) structures for $n \geq 3$. There are, however, topological constraints on such structures, if they exist. We show that if any complex manifold X diffeomorphic to $\mathbb{C}P^n$ admits a holomorphic \mathbb{C}^* action that fixes a hypersurface, then the first Chern number of X is (up to sign) the same as the first Chern number of $\mathbb{C}P^n$. (Received September 20, 2007)