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David R Finston* (dfinston@nmsu.edu), Department of Mathematical Sciences, New Mexico State University, Las Cruces, NM 88003. *A class of factorial threefolds*. Preliminary report.

The complex factorial affine threefolds $X_{m,n}$, $m, n > 0$, with defining equations $x^n v - y^m u = 1$ have several interesting properties. They carry the structure of total spaces of principal bundles for the additive group over the punctured affine plane $Y = \mathbb{C}^2 - \{0\}$, and the assignment $X_{m,n} \rightarrow [\frac{1}{x^m y^n}] \in \check{H}^1(Y, O_Y)$ identifies these varieties with a natural basis for this Čech cohomology group. Every factorial threefold with a locally trivial G_a action looks locally like an $X_{m,n}$, and $X_{m,n} \times \mathbb{C} \cong X_{m',n'} \times \mathbb{C}$ for every pair $(m, n), (m', n')$. It turns out that $X_{m,n} \cong X_{m',n'}$ provided $m + n = m' + n'$, but it is unknown whether this condition is necessary. On the other hand, $X_{m,n} \cong X_{1,1}$ iff $(m, n) = (1, 1)$, so that the $X_{m,n}$ yield counterexamples to the affine cancellation problem. (Received February 09, 2010)