1077-14-1612 **Drew Lewis*** (andrew@math.wustl.edu), Washington University in St. Louis, Campus Box 1146, One Brookings Drive, St. Louis, MO 63130. *Affine fibrations and Vénéreau-type polynomials.*

The Vénéreau polynomials $f_n = y + x^n(xz + y(yu + z^2))$ $(n \geq 1)$ are well known examples of polynomials with many coordinate-like properties, including that they are coordinates when x is inverted, or upon going modulo x. f_n is known to be a $\mathbb{C}[x]$-coordinate for $n \geq 2$, but the question remains open for $n = 1$.

We show that many polynomials with this coordinate-like property are in fact coordinates over $\mathbb{C}[x]$. In the case of $\mathbb{C}^{[4]}$, the additional assumption that a polynomial becomes a coordinate of a tame automorphism upon inverting x is sufficient to guarantee it is a $\mathbb{C}[x]$-coordinate. As corollaries, we obtain that Vénéreau-type polynomials are all 1-stable $\mathbb{C}[x]$-coordinates, and characterize them as the simplest potential counterexamples to the Dolgachev-Weisfeiler conjecture. (Received September 20, 2011)