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Brian G. Kronenthal* (kronenthal@kutztown.edu). *Algebraically defined graphs of girth eight*. Preliminary report.

For a field \mathbb{F} and polynomials $f, g \in \mathbb{F}[x, y]$, the partite sets P and L of a three-dimensional algebraically defined (bipartite) graph are each copies of \mathbb{F}^3 , and $(p_1, p_2, p_3) \in P$ and $(\ell_1, \ell_2, \ell_3) \in L$ are adjacent if and only if $p_2 + \ell_2 = f(p_1, \ell_1)$ and $p_3 + \ell_3 = g(p_1, \ell_1)$. Of interest is whether for a particular field there exist nonisomorphic girth eight algebraically defined graphs; this question was originally motivated by the study of generalized quadrangles. In this talk, we will discuss results over several fields of interest. (Received August 24, 2017)