1141-05-23   **Alex Kodess*** (kodessa@farmingdale.edu) and **Felix Lazebnik**. *The Isomorphism Problem for Monomial Digraphs $D(q; m, n)$.*

Let p be a prime, let e be a positive integer, $q = p^e$, and let $\mathbb{F}_q$ denote the finite field of q elements. Let m, n, $1 \leq m, n \leq q - 1$, be integers. The monomial digraph $D = D(q; m, n)$ is defined as follows: the vertex set of D is $\mathbb{F}_q^2$, and $((x_1, x_2), (y_1, y_2))$ is an arc in D if $x_2 + y_2 = x_1^m y_1^n$. We study the question of isomorphism of monomial digraphs $D(q; m_1, n_1)$ and $D(q; m_2, n_2)$. We conjecture that $D(q; m_1, n_1) \cong D(q; m_2, n_2)$ if and only if $(m_2, n_2) = k(m_1, n_1)$ for some integer k coprime with $(q - 1)$. While the sufficiency of this condition is known, its necessity remains an open question. We present a number of partial results that support the conjecture. (Received June 25, 2018)

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