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Daniel P. Wisniewski* (daniel.wisniewski@desales.edu), Department of Mathematics/Computer Science, DeSales University, 2755 Station Avenue, Center Valley, PA 18034. *Progress and Challenges Regarding Tetranomial Thue Equations.*

In 2000, Emery Thomas published results for counting the number of solutions to trinomial Thue equations. In his paper, Thomas suggested that his methods, which include solving a Diophantine approximation problem combined with a gap principle argument, along with an application of the Thue-Siegel principle, could be adapted to tetranomials. However, in so doing for the four-term Thue equation, certain additional conditions were necessary in order to find explicit numerical upper bounds for the number of solutions $(p, q) \in \mathbb{Z}$, with $|pq| \geq 2$, to the tetranomial Thue equation $|F(x, y)| = 1$, where

$$F(x, y) = ax^n + r^m y^{n-m} - rx^k y^{n-k} + ty^n,$$

with $n > m > k > 0$ and $a, r, s, t \in \mathbb{Z} - \{0\}$. While highlighting certain challenges faced in this process, an overview of the development of these results will be given. (Received September 20, 2016)