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Eva G Goedhart* (goedhart@lvc.edu) and **Helen G Grundman**. *Using Continued Fractions to Solve a Family of Diophantine Equations.*

For positive integers a, b, c, k with $k \geq 7$, I will show how the family of Diophantine equations $(a^2cX^k - 1)(b^2cY^k - 1) = (abcZ^k - 1)^2$ has no integer solutions $x, y, z > 1$ with $a^2x^k \neq b^2y^k$ by using the simple continued fraction expansion of possible solutions to contradict known results. While this will be my focus for this presentation, the proof also uses a Diophantine approximation theorem. (Received September 06, 2018)