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Peter Koymans* (koymans@umich.edu) and **Carlo Pagano**. *The negative Pell equation and applications.*

In this talk we will study the negative Pell equation, which is the conic $C_D : x^2 - Dy^2 = -1$ to be solved in integers $x, y \in \mathbb{Z}$. We shall be concerned with the following question: as we vary over squarefree integers D , how often is C_D soluble? Stevenhagen conjectured an asymptotic formula for such D . Fouvry and Kluners gave upper and lower bounds of the correct order of magnitude. We will discuss a proof of Stevenhagen's conjecture, and potential applications of the new proof techniques. This is joint work with Carlo Pagano. (Received January 20, 2022)