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Rachelle DeCoste* (decoste_rachelle@wheatoncollege.edu), 48 Branch St, Mansfield, MA 02048. *20 years of Density of Closed Geodesics on 2-step Nilmanifolds.*

In the study of geometric properties of nilmanifolds constructed from 2-step nilpotent Lie groups, the distribution of closed geodesics has been well considered. Eberlein, Lee-Park and Mast produced some early results that completely answered the question of whether a nilmanifold has a dense set of closed geodesics when it arises from a nonsingular 2-step nilpotent Lie algebra. In the years since, progress has been made on answering the question for certain classes in the singular case. We will discuss important findings, including the Heisenberg-like case, and give recent results on nilmanifolds arising from a graph construction. (Received September 15, 2017)