1135-22-1010 **Rachelle C DeCoste** and **Lisa DeMeyer*** (demey1la@cmich.edu), Department of Mathematics, Pearce 214, Central Michigan University, Mount Pleasant, MI 48858, and **Meera Mainkar**. *Geodesics properties of two-step nilmanifolds constructed from graphs.*

Dani and Mainkar (2005) introduced a method for constructing a simply connected 2-step nilpotent Lie group N from a simple directed graph G. The construction gives rise to a natural left-invariant metric on N. Working with the corresponding metric Lie algebra, we will discuss joint work on geometric properties of these groups including geodesic properties, and describe the interplay between the graph G and the group N. Following results of Mast (1994), Eberlein (1994) and Lee-Park (1996), we will discuss results on the density of closed geodesics in the compact quotient N by a lattice, where N is constructed from a simple graph. (Received September 18, 2017)