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Oscar Levin* (oscar.levin@unco.edu), 501 20th Street, Campus Box 122, Greeley, CO 80639.

Prime labelings of infinite graphs with connections to computability theory.

A prime labeling of a graph is a function which maps vertices to positive integers such that adjacent vertices have relatively prime labels. This notion of graph labeling has been well studied for finite graphs; here we extend the definition to infinite graphs. We will give a simple necessary and sufficient condition for an infinite graph to have a prime labeling, and then use ideas from computability theory to prove that our condition is as simple as possible. The talk will conclude with some ideas for future research into infinite graph labelings suitable for undergraduate students. (Received September 25, 2017)