

1124-05-159

Gregory J Clark* (gjclark@math.sc.edu), **Joshua Cooper**, **Jacob Folks**, **Seung Mok Lee**, **Andrew Mamroth**, **Sydney Miyasaki**, **Caleb Simmons** and **David Stewart**. *Splitting Numbers of Integer Tiles*.

Janos Pach conjectured the following: there is a least integer N so that every covering of the plane by unit disks, such that each point is covered at least N times, has a two-coloring of the disks (say, by red and blue) where each point in the plane is covered by a red disk and a blue disk. In 2015, Pach and Palvolgyi showed the conjecture to be false. We explore questions similar to Pach's by restricting our attention to coverings of the integers by integer tiles. In particular, we show that for finite integer tiles a suitable N (which we define as the splitting number) always exists. In doing so we provide bounds on the splitting number of a finite tile and determine the splitting number for some families of tiles. We conclude by presenting a connection between computing the splitting number of an integer tile and two-coloring a uniform hypergraph. (Received September 06, 2016)