

1158-13-172

**Carmelo Cisto, Michael DiPasquale\*** (michael.dipasquale@colostate.edu), **Gioia Failla, Zachary Flores, Chris Peterson** and **Rosanna Utano**. *Generalizing Wilf's conjecture to higher dimensions.*

Wilf's conjecture is a long standing open problem about the density of holes in a numerical semigroup, which is a submonoid of the natural numbers ( $\mathbb{N}$ ) with finite complement. We propose a generalization of Wilf's conjecture for submonoids of  $\mathbb{N}^d$  with finite complement (called generalized numerical semigroups). We prove this conjecture for several large classes of generalized numerical semigroups, including irreducible, symmetric, and monomial classes. We also discuss the relationship of our conjecture to a different generalization of Wilf's conjecture proposed by García-García, Marín-Aragón, and Vigneron-Tenorio. Time permitting we'll discuss some extensions of our results which are in progress. This is joint work with C. Cisto, G. Failla, Z. Flores, C. Peterson, and R. Utano. (Received February 29, 2020)