1064-13-275 **Huy Tai Ha** (tha@tulane.edu), **Erik Stokes*** (stokes.erik@gmail.com) and **Fabrizio Zanello** (zanello@mtu.edu). *Pure O-sequences and Matroid h-vectors.*

A long-standing conjecture of Stanley states that the h-vector of any matroid is a pure O-sequence. A number of special cases have been proven but, to date, they have been generally been based on explicitly constructing the required artinian, level monomial ideals. We take a different approach and concentrate instead on the properties of pure O-sequences. In particular, we state a conjecture on pure O-sequences, which we are able prove for small socle degrees. Using this new technique we are able to prove Stanley's conjecture for all rank 3 matroids. (Received September 12, 2010)