

1145-05-2359

Oscar Levin* (oscar.levin@unco.edu), University of Northern Colorado, School of
Mathematical Sciences, Greeley, CO 80639. *Coloring hypergraphs is harder than coloring graphs.*

To measure the complexity of graph coloring problems for infinite graphs, you can restrict to *computable* graphs and ask whether there is a *computable* coloring of optimal size. For example, it has long been known that there is a computable connected graph with chromatic number 3 with no computable 3-coloring (indeed with no computable k -coloring for any k). However, any computable connected graph with chromatic number 2 does have a computable 2-coloring. In this talk we will consider another way in which 3 is more complicated than 2: what happens when the number of vertices per edge increases to 3? We consider 3-uniform hypergraphs with (weak) chromatic number 2 and see that even if the hypergraph is *highly* computable, there need not be a computable 2-coloring. (Received September 25, 2018)