

Colorings of Complete (p, q) -Uniform Circular Mixed Hypergraphs of Order n

György Dósa 1, Nicholas Newman* 2, Zsolt Tuza 1,3, and Vitaly Voloshin 2

1 University of Pannonia, 2 Troy University, 3 Alfréd Rényi Institute of Mathematics

A mixed cycloid is a mixed hypergraph whose vertices can be arranged in a cyclic order and every consecutive p vertices form a C -edge, and every consecutive q vertices form a D -edge in the ordering. We completely determine the maximum number of colors that can be used for any $p \geq 3$ and any $q \geq 2$. We also develop an algorithm which generates a coloring with any number of colors between the minimum and maximum.

Keywords: coloring; circular hypergraph; mixed hypergraph