
ANDREA BURGESS, University of New Brunswick Saint John
Equitable colourings of cycle systems

A c -colouring of a design is an assignment of c colours to its points. We call such a colouring *equitable* if in each block, the number of points of any two given colours differ by at most one; that is, in each block, all colours appear as closely as possible to an equal number of times.

Equitable colourings of cycle systems were introduced in work by Adams, Bryant, Lefevre and Waterhouse, who considered equitably 2- and 3-colourable ℓ -cycle systems of K_v and $K_v - I$ for $\ell \in \{4, 5, 6\}$. In this talk, we discuss some constructions of equitably 2-colourable ℓ -cycle decompositions of K_v and $K_v - I$ in the case that v and ℓ have the same parity. In particular, we show that there is an equitably 2-colourable ℓ -cycle system of K_v whenever ℓ is odd and $v \equiv 1$ or $\ell \pmod{2\ell}$.

This is joint work with Francesca Merola.