Algebraically Describing Color Trades of Complete Bipartite Graphs

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Two proper edge-colorings of a graph *G* are mate-colorings if and only if every vertex of *G* is incident to the same set of colors under each edge-coloring. The color-trade-spectrum of a graph *G* is the set of all *t* for which there exist two mate-colorings of G using *t* colors. Latin rectangles were used in the determination of the color-trade-spectrum of complete bipartite graphs, and since every Latin square corresponds to a quasigroup, it is natural to investigate the problem from an algebraic perspective. In this talk, we introduce some preliminary findings from this investigation.

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