



Algebra Session

Colorings of Latin squares and diagonal graphs

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14h - 14h50

Math Department- Auditorium

Abstract.

I'll review some recent results and long standing conjectures concerning the colorings of Latin squares. A Latin square of order n requires at least n colors. The colorability with precisely n colors is equivalent to the existence of an orthogonal mate. Problems related to orthogonal mates were first studied by Euler and some of his questions were answered in the 20th and 21st century. Not all Latin squares, including Cayley tables of finite groups, possess orthogonal mates and the question of classifying finite groups whose Latin squares have orthogonal mates requires the Finite Simple Group Classification. I will also generalize the problem to higher-dimensional objects and present some results related to colorings of diagonal graphs. Some of these results have deep consequences in permutation group theory.