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Schur rings and planar functions

Earlier, Schur rings have been found useful in the construction of association schemes which are important combinatorial objects with applications in other areas of research as well. Recently, Schur rings are a powerful tool for solving Cayley graph isomorphism problem. For Cayley graphs over p -groups a great role is played by p -Schur rings. In general, a Schur ring is not necessary Schurian. We show that a p -Schur ring over an elementary abelian group of rank 3 is always Schurian by using a well known result of planar functions over prime fields. This answers a question of Hirasaka and Muzychuk.

This paper is a joint work with Pablo Spiga.