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Infinite family of nonschurian separable association schemes

It is known that there exist infinite families of coherent configurations which are: (1) schurian and separable; (2) schurian and nonseparable; (3) nonschurian and nonseparable. The following question was asked, in fact, in [1].

Question. Whether there exists an infinite family of nonschurian separable coherent configurations?

We give an affirmative answer to this question. More precisely, we prove the following theorem.

Theorem. For every prime $p \geq 5$, there exists a nonschurian association scheme of degree $4p^2$ which is separable.

References

[1] *G. Chen, I. Ponomarenko*, Coherent configurations, Central China Normal University Press, Wuhan (2019).