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Minimal repeated measurements designs balanced for residual effects in circular periods of three different sizes. (English) [Zbl 1418.05029](#)
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Summary: The main focus of this article is to develop some infinite series to generate circular balanced repeated measurements designs in periods of three different sizes, using method of cyclic shifts (Rule II). Some construction procedures are also developed for the cases where series are not developed. Catalogues of these designs are also presented. These designs have diversified application with varied period sizes, e.g., medicine, pharmacology, animal sciences and psychology. These designs are mainly used to balance out the residuals effects.

MSC:

[05B05](#) Combinatorial aspects of block designs
[62K10](#) Statistical block designs
[62K05](#) Optimal statistical designs

Keywords:

[repeated measurements designs](#); [residual effects](#); [circular balanced repeated measurement designs](#); [minimal designs](#)

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References:

- [1] Afsarinejad, K., Repeated measurements designs with unequal periods sizes, *J Ital Stat Soc*, 2, 161-168, (1994) · [Zbl 1446.62215](#)
- [2] Bashir, Z.; Ahmed, R.; Tahir, MH; Ghazali, SSA; Shehzad, F., Some extensions of circular balanced and circular strongly balanced repeated measurements designs, *Commun Stat Theory Methods*, 47, 2183-2194, (2018) · [Zbl 1388.05023](#)
- [3] Cheng, CS; Wu, CF, Balanced repeated measurements designs, *Ann Stat*, 8, 1272-1283, (1980) · [Zbl 0461.62064](#)
- [4] Iqbal I (1991) Construction of experimental design using cyclic shifts. Unpublished Ph.D Thesis, University of Kent at Canterbury, UK
- [5] Iqbal, I.; Jones, B., Efficient repeated measurements designs with equal and unequal period sizes, *J Stat Plan Inference*, 42, 79-88, (1994) · [Zbl 0803.62072](#)
- [6] Iqbal, I.; Tahir, MH, Circular strongly balanced repeated measurements designs, *Commun Stat Theory Methods*, 38, 3686-3696, (2009) · [Zbl 1285.05019](#)
- [7] Iqbal, I.; Tahir, MH; Ghazali, SSA, Circular first-and second-order balanced repeated measurements designs, *Commun Stat Theory Methods*, 39, 228-240, (2010) · [Zbl 1227.05076](#)
- [8] Khan, A.; Ahmed, R.; Shehzad, F.; Tahir, MH; Ghazali, SSA, Construction of circular partially balanced-repeated measurement designs using cyclic shifts, *Commun Stat Simul Comput*, (2018)
- [9] Magda, CG, Circular balanced repeated measurements designs, *Commun Stat Theory Methods*, 9, 1901-1918, (1980) · [Zbl 0457.62061](#)
- [10] Rajab, M.; Ahmed, R.; Shehzad, F.; Tahir, MH, Some new constructions of circular balanced repeated measurements designs, *Commun Stat Theory Methods*, 47, 4142-4151, (2018)
- [11] Rasheed, U.; Rasheed, HMK; Rasheed, M.; Ahmed, R., Minimal circular strongly balanced repeated measurements designs in periods of three different sizes, *Commun Stat Theory Methods*, 47, 4088-4094, (2018)

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