

Package ‘mxkssd’

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Title Efficient Mixed-Level k-Circulant Supersaturated Designs

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Depends R(>= 2.13.0)

Description Generates efficient balanced mixed-level k-circulant supersaturated designs by interchanging the elements of the generator vector. Attempts to generate a supersaturated design that has EfNOD efficiency more than user specified efficiency level (mef). Displays the progress of generation of an efficient mixed-level k-circulant design through a progress bar. The progress of 100 per cent means that one full round of interchange is completed. More than one full round (typically 4-5 rounds) of interchange may be required for larger designs. For more details, please see Mandal, B.N., Gupta V. K. and Parsad, R. (2011). Construction of Efficient Mixed-Level k-Circulant Supersaturated Designs, Journal of Statistical Theory and Practice, 5:4, 627-648, <doi:10.1080/15598608.2011.10483735>.

License GPL (>= 2)

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R topics documented:

mxkssd	2
Index	4

 mxkssd

Efficient mixed-level k-circulant supersaturated designs

Description

mxkssd is a package that generates efficient balanced mixed-level k-circulant supersaturated designs by interchanging the elements of the generator vector. The package tries to generate a supersaturated design that has EfNOD efficiency more than user specified efficiency level (mef). The package also displays the progress of generation of an efficient mixed-level k-circulant design through a progress bar. The progress of 100 per cent means that one full round of interchange is completed. More than one full round (typically 4-5 rounds) of interchange may be required for larger designs.

Usage

```
mxkssd(m,n,level_vec,k,mef)
```

Arguments

m	number of factors
n	number of runs
level_vec	level vector containing the levels of the factors such that (n-1) factors have each of these levels
k	order of circulation
mef	minimum efficiency required, should be between 0 to 1

Value

A list containing following items

m	number of factors
n	number of runs
level_vec	level vector containing the levels of the factors such that (n-1) factors have each of these levels
k	order of circulation
generator.vector	generator vector
design	design
EfNOD.efficiency	EfNOD efficiency
max.fNOD	maximum fNOD
time.taken	time taken to generate the design
number.aliased.pairs	number of aliased pairs of columns

Author(s)

B N Mandal

References

B. N. Mandal, V. K. Gupta & Rajender Parsad (2011) Construction of Efficient Mixed-Level k-Circulant Supersaturated Designs, *Journal of Statistical Theory and Practice*, 5:4, 627-648, DOI: 10.1080/15598608.2011.10483735

Examples

```
##To generate an efficient mixed level 2-circulant supersaturated design
#with 8 runs and 14 factors such that 7 factors have number of levels 2 and
#another 7 factors have number of levels 4. So the level_vec is c(2,4).
#The required minimum efficiency is 1.
mxkssd(14,8,c(2,4),2,1)
```

Index

- * **efficiency**
mxkssd, 2
- * **k-circulant**
mxkssd, 2
- * **mixed-level**
mxkssd, 2
- * **mxkssd**
mxkssd, 2
- * **supersaturated design**
mxkssd, 2

mxkssd, 2