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Determinantal sampling designs : Highlights for review

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- We define and study a new class of sampling designs: determinantal sampling designs.
- We compute exactly the variance of linear estimators constructed upon these designs by using the first and second order inclusion probabilities.
- We obtain asymptotic and finite sample theorems.
- We construct explicitly fixed size determinantal sampling designs with given first order inclusion probabilities.
- We also address the search of optimal determinantal sampling designs.
- This article provides theoretical and empirical evidence that determinantal sampling designs may be useful in sampling theory. Indeed, they offer the possibility to use powerful results from different domains of mathematics (probability theory, frame theory, matrix theory, semidefinite optimization).

In this second revised version, we made all the changes suggested by the referee.

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