

# 20th Workshop on Stochastic Geometry, Stereology and Image Analysis

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## Abstract



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## Modeling the covariogram in 2D length estimation

The variance under systematic sampling on the circle has been widely studied by L.M. Cruz-Orive and X. Gual-Arnau. Several formulas for different methods in local stereology are based on a given model for the covariogram. Quasi Monte Carlo methods and the Moore-Aronszajn theorem provide alternative models to attack this problem.

In this work, I focus on the special case of the variance predictor for the estimator of planar curve length based on intersection counting with a square grid (Buffon-Steinhaus estimator), and propose improvements to increase the accuracy of the predictions. Finally, the approach is tested against Monte Carlo replications in an enlarged dataset of curvilinear features used in the literature and the results and further applications are discussed.