



**FACULTY
OF MATHEMATICS
AND PHYSICS**
Charles University

MASTER THESIS

Daniel Jahn

Generalized Random Tessellations

Department of Probability and Mathematical Statistics

Supervisor of the master thesis: prof. RNDr. Viktor Beneš, DrSc.

Study programme: Mathematics

Study branch: Probability, mathematical statistics and econometrics

Prague 2019

I declare that I carried out this master thesis independently, and only with the cited sources, literature and other professional sources.

I understand that my work relates to the rights and obligations under the Act No. 121/2000 Sb., the Copyright Act, as amended, in particular the fact that the Charles University has the right to conclude a license agreement on the use of this work as a school work pursuant to Section 60 subsection 1 of the Copyright Act.

In date

signature of the author

Benes A Nohic Dereudre SE

Title: Generalized Random Tessellations

Author: Daniel Jahn

Department: Department of Probability and Mathematical Statistics

Supervisor: prof. RNDr. Viktor Beneš, DrSc., Department of Probability and Mathematical Statistics

Abstract: Abstract.

Keywords: key words

Contents

Introduction	2
1 Geometric preliminaries	3
1.1 Triangulations	3
1.2 Hypergraph structuers	3
2 Stochastic geometry	4
2.1 Gibbs point process	4
2.2 Random tessellations	4
3 Existence of Gibbs-type models	5
4 Simulation	6
4.1 MCMC	6
4.2 Practical implementation	6
4.3 Results	6
5 Estimation	7
5.1 Results	7
Conclusion	8
Bibliography	9
List of Figures	10
List of Tables	11
A Appendix	12
A.1 Section	12
List of Abbreviations	13

Introduction

1. Geometric preliminaries

1.1 Triangulations

1.2 Hypergraph structuers

2. Stochastic geometry

2.1 Gibbs point process

2.2 Random tessellations

3. Existence of Gibbs-type models

4. Simulation

4.1 MCMC

4.2 Practical implementation

4.3 Results

5. Estimation

5.1 Results

Conclusion

Bibliography

List of Figures

List of Tables

A. Appendix

A.1 Section

List of Abbreviations