

LIMIT THEORY FOR PLANAR GILBERT TESSELLATIONS

Tomasz Schreiber
Natalia Soja

Abstract: A Gilbert tessellation arises by letting linear segments (cracks) in \mathbb{R}^2 unfold in time with constant speed, starting from a homogeneous Poisson point process of germs in randomly chosen directions. Whenever a growing edge hits an already existing one, it stops growing in this direction. The resulting process tessellates the plane. The purpose of the present paper is to establish a law of large numbers, variance asymptotics and a central limit theorem for geometric functionals of such tessellations. The main tool applied is the *stabilization theory* for geometric functionals.

2000 AMS Mathematics Subject Classification: Primary: 60F05; Secondary: 60D05.

Keywords and phrases: Gilbert crack tessellation, stabilizing geometric functionals, central limit theorem, law of large numbers.

THE FULL TEXT IS AVAILABLE [HERE](#)