Littoral-Kent Seminar, May 2018

Date
Tuesday, May 8th

Location
SibLT2, Sibson Building
University of Kent
Canterbury

Programme

Time		Location
10.30-11.30	**Antoine Benoit** (Universités Lille Nord de France ULCO, Calais): *Hyperbolic boundary value problems: a short survey about strong well posedness and WKB expansions*	Sibson LT2
11.30-12.30	**Ana Loureiro** (University of Kent): *TBA*	Sibson LT2
12.30-2.00	**Buffet lunch**	Sibson LT2
2.00-3.00	**Nicolas Chevanier** (Universités Lille Nord de France ULCO, Calais): *The maximal degree in a Poisson-Delaunay graph*	Sibson LT2
3.00-4.00	**Jim Shank** (University of Kent): *Modular Representations and Invariants of p-Groups*	Sibson LT2
4.00	**Tea & Coffee**	Sibson LT2

Abstracts

The maximal degree in a Poisson-Delaunay graph

Nicolas Chenavier

joint work with Gilles Bonnet (Ruhr-Universität Bochum, Germany)

Keywords: Stochastic Geometry, Extreme Value Theory, Poisson-Delaunay graph, degree

Abstract: A Delaunay triangulation associated with a locally finite subset χ in $\mathbf{R}^2$ is a triangulation $DT(\chi)$ such that no point in χ belongs to the interior of the circumdisk of any triangle in $DT(\chi)$. This model is the key ingredient of the first algorithm for computing the minimal spanning tree and is extensively used in various domains, such as medical image segmentation and finite element methods to build meshes.
In this talk, we consider the case where $\chi = \eta$ is a homogeneous Poisson point process in $\mathbf{R}^2$. We investigate the maximal degree Δ_n of the so-called Delaunay graph associated with η (consisting of the set of edges of triangles) observed in the window $W_n = [-n, n]^2$, namely

$$\Delta_n = \max_{x \in \eta \cap W_n} d_\eta(x),$$

where $d_\eta(x)$ is the degree of any point x, i.e. the number of edges passing through x. As n goes to infinity, we show that Δ_n is concentrated on two consecutive integers. We also provide the exact order of Δ_n.

Modular Representations and Invariants of p-Groups

Jim Shank

Abstract: Invariant Theory seeks to construct polynomial functions with specified symmetry. I will discuss some current research in the modular case, i.e., when the characteristic of the field of coefficients is a prime number p which divides the order of the symmetry group.