Mathew Penrose

Limit Theorems for point patterns in flat and curved spaces

Joint with J. E. Yukich

For an empirical point process governed by a probability density function in d-space, consider functionals obtained by summing over each point some function which is locally determined. General laws of large numbers and central limit theorems for such functionals are known. We discuss such results, their extensions to point processes in manifolds, and applications to particular functionals such as multidimensional spacings statistics, dimension estimators, entropy estimators, variance estimators, and discretised volume estimators.