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Voronoi volume function: A new probe of cosmology and galaxy evolution

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Room A304

I will discuss the Voronoi volume function (VVF) - the distribution of cell volumes in the Voronoi tessellation of any sample of cosmological tracers such as galaxies or dark haloes. Using N-body simulations and analytical arguments, I will show that the VVF is sensitive to a variety of physical properties of the sample (mass, large-scale environment, kinematics of substructure, redshift evolution, etc.), which themselves respond to primordial variables such as the shape of the initial matter power spectrum and the linear growth of structure. This makes the VVF an easily measurable and hitherto unexplored probe of both cosmology and galaxy evolution. I will present some preliminary comparisons between the VVF of galaxies observed in the GAMA survey and that of abundance-matched simulated haloes, and also outline possible questions that can be addressed through accurate modelling of the VVF.