Abstract

Given a planar point set with a density constant, one can study the limiting distribution of gaps for directions (i.e. projection to the unit sphere) of points from this point set in larger and larger disks.

For integer points an explicit formula for the limiting gap distribution function was obtained by Boca, Cobeli, and Zaharescu using analytic number theory. This formula was later extended by Marklof and Strömbergsson for any lattices using homogeneous dynamics. More recently, they showed the limiting gap distribution function exists for point sets of cut-and-project type. In this talk I will describe a tail asymptotic formula for this limiting gap distribution function for a certain family of cut-and-project sets of arithmetic origin, which, in particular includes some classical quasicrystals. This is work in progress with Hammarhjelm and Strömbergsson.