Department of Mathematics, BGU

Colloquium

On *Tuesday, March ,12 2019*

At *14:30 – 15:30*

In *Math 101-*

Wojciech Samotij (Tel Aviv University)

will talk about

Large deviations in random graphs

Abstract: Suppose that Y_1, ,... Y_N are i.i.d. (independent identically distributed) random variables and let X = Y_1 + ... + Y_N. The classical theory of large deviations allows one to accurately estimate the probability of the tail events X > (1-c)E[X] and X < (1+c)E[X] for any positive c. However, the methods involved strongly rely on the fact that X is a linear function of the independent variables Y_1, ,... Y_N. There has been considerable interest—both theoretical and practical—in developing tools for estimating such tail probabilities also when X is a nonlinear function of the Y_i. One archetypal example studied by both the combinatorics and the probability communities is when X is the number of triangles in the binomial random graph G(n,p). I will discuss two recent developments in the study of the tail probabilities of this random variable. The talk is based on joint works with Matan Harel and Frank Mousset and with Gady Kozma.