THE WEIZMANN INSTITUTE OF SCIENCE
FACULTY OF MATHEMATICS AND COMPUTER SCIENCE
Geometric Functional Analysis and Probability Seminar

Room 155 ,Ziskind Building
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Upper tail large deviations of subgraph counts in sparse random graphs

Abstract:

For a Δ-regular connected graph ${\sf H}$ the problem of determining the upper tail large deviation for the number of copies of ${\sf H}$ in an Erd\H{o}s-R\'{e}nyi graph on n vertices with edge probability p has generated significant interests. In the sparse regime, i.e. for $p \ll 1$, when $np^{\Delta/2} \gg (\log n)^{1/(v_{\sf H}-2)}$, where $v_{\sf H}$ is the number of vertices in ${\sf H}$, the upper tail large deviation event is believed to occur due to the presence of localized structures. Whereas, for p below the above threshold the large deviation is expected to be given by that of a Poisson random variable. In this talk, we will discuss some progress in resolving this conjecture.

This is based on joint work with Riddhipratim Basu.

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