LIMIT THEOREMS FOR BETTI NUMBERS OF RANDOM GEOMETRIC COMPLEXES BUILT OVER BINOMIAL POINT PROCESSES

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The limiting behavior, including the weak and strong laws of large numbers and a central limit theorem, for real functionals defined on binomial point processes in a finite dimensional Euclidean space has been studied intensively in stochastic geometry. Functionals are usually assumed to be stabilizing in the sense that the contribution from each point depends only on its neighborhood. This talk aims to give a brief survey on a recent development of that theory which is suitable to establish the strong law of large numbers and a central limit theorem for Betti numbers of random Cech or Rips complexes in the critical regime. This is based on a joint work with A. Goel and K. Tsunoda (arXiv:1805.05032), and arXiv:1804.02823.