Seminar/Talk

Turning a coin over instead of tossing it

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Host: Laszlo Erdös

Given a sequence of numbers p_n in [0,1], consider the following experiment. First, we flip a fair coin and then, at step n, we turn the coin over to the other side with probability p_n, n> 1, independently of the sequence of the previous terms. What can we say about the distribution of the empirical frequency of heads as n tends to infinity?

We show that a number of phase transitions take place as the turning gets slower (i.e. p_n is getting smaller), leading first to the breakdown of the Central Limit Theorem and then to that of the Law of Large Numbers. It turns out that the critical regime is p_n=(const)/n. Among the scaling limits, we obtain Uniform, Gaussian, Semicircle and Arcsine laws.

This is joint work with Stas Volkov (Lund).

Tuesday, August 8, 2017 04:00pm - 06:00pm
Big Seminar room Ground floor / Office Bldg West (I21.EG.101)

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