ETH Zurich HS 2019
D-MATH, D-PHYS
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Coordinator
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Probability Theory

Self evaluation quiz, November 07

Number:

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1. Give the definition of tightness. What is the inequality involving characteristic functions which is used to prove tightness in the second part of the continuity theorem?

2. Compute the characteristic function of a compound Poisson distribution.

3. What does it mean that X has a symmetric stable distribution? If X_k, $k \geq 1$ are i.i.d. random variables with the same distribution as X, find β such that for all $n \geq 1$, $(X_1 + \ldots + X_n)/(n^\beta)$ has the same distribution as X (justify your answer).

4. State Kolmogorov's $0-1$ law. Give an example where it applies.