**Colloquium by Renato Renner**

**Title: True randomness**

**Abstract:**

A fundamental difference between classical and quantum physics is that the latter is fundamentally indeterministic. This indeterminism can be exploited to generate “true” randomness, i.e., values that cannot be predicted by anyone. In my talk, I will explain how such true randomness is different from “classical” randomness, and how this difference can be understood quantitatively. I will then discuss the requirements for generating true random numbers with real-world devices, as well as their use in cryptographic applications.