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Jason M Rute* (jmr71@math.psu.edu). *Schnorr randomness and computable analysis.*

In the computable analysis of measure theory, probability theory, dynamical systems, stochastic calculus, and calculus of variations it is helpful to replace “almost everywhere” theorems with theorems that refer to a specific measure-one set of “random” points. Traditionally, Martin-Löf randomness has been used for this purpose with great success.

However, recently it has become apparent that Martin-Löf randomness is not always the correct randomness notion. Instead, Schnorr randomness, a more effective cousin of Martin-Löf randomness, is better suited for many tasks. I will make this clear and formal by surveying a number of effective almost-everywhere convergence theorems which characterize Schnorr randomness. These include differentiability and martingale convergence theorems as well as others.

I will also talk about applications of computable analysis to the study of Schnorr randomness. (Received August 28, 2013)