

University of Notre Dame Department of Mathematics
LOGIC SEMINAR

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Will give a lecture entitled:

An abstract approach to randomness and complexity

On

Thursday, April 19, 2012

At

1:00 PM

In

125 Hayes-Healy Hall

Abstract

In this talk, I will introduce some generalizations of randomness and complexity. We define randomness notions by "measure-like" functions, and define complexity notions by generalizations of the Kraft inequality. Then, we can show that the above two notions have a concrete correspondence. This is a generalization of Schnorr's theorem, which states that a real X is Martin-Löf random if and only if it is weakly Chaitin random. We also consider when a real is compressible in the arithmetic. For example, a real X is s -compressible (by KP) in Peano Arithmetic if and only if it is not strongly- s -random. For this, we use the above correspondence and relativization of randomness to a PA degree. The latter part is partially joint work with K. Higuchi, P. Hudelson and S. Simpson.