JAN REIMANN, Pennsylvania State University

Turing Degrees and Randomness for Continuous Measures

We study degree-theoretic properties of reals that are not random with respect to any continuous probability measure (NCR). To this end, we introduce a family of Hausdorff measures based on the dissipation function of a continuous probability measure, parameterized by a natural number n. The corresponding Solovay tests then induce an ω-hierarchy of randomness tests with respect to a continuous measure. We use this hierarchy to prove the existence of NCR elements in a wide range of Turing degrees. We also use it to study the relation between continuous randomness and initial segment Kolmogorov complexity. This is joint work with Mingyang Li.