Editorial

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The annual meeting Computability, Complexity and Randomness is worldwide the central conference on algorithmic randomness, an area which in turn has been one of the most central and most fruitful subareas of computation theory for almost two decades now. This special issue contains articles on algorithmic randomness that relate to talks at the Seventh International Conference on Computability, Complexity and Randomness (CCR 2012), which was held 2 through 6 July 2012 at the Isaac Newton Institute for Mathematical Sciences in Cambridge, Great Britain. No proceedings have been compiled for the conference and the only publication relating to it is this special issue, which consists of seven excellent articles exhibiting the plenitude and variety of current research in algorithmic randomness. The contributions to this special issue are mostly journal versions of presentations given at the conference. All contributions were selected via the usual thorough reviewing process of the journal Theory of Computing Systems and are authored or co-authored by speakers at the conference.

The first article *Feasible analysis, randomness, and base invariance* by Santiago Figueira and André Nies relates polynomial-time randomness to normality, where the latter is a weak but important notion of randomness studied in various branches of mathematics. Next Kenshi Miyabe shows in his contribution *Schnorr triviality and its equivalent notions* several equivalences between notions derived from Schnorr randomness. In a setting of randomness notions with respect to measures different from the uniform one, Christopher Porter demonstrates in his article *Trivial measures are not so trivial* that the allegedly simple class of measures with countable support bears more structure than one may expect in the first place.

Andrei Romashchenko and Alexander Shen propose an interesting fresh approach that uses *Topological arguments for Kolmogorov complexity* in order to construct strings with prescribed Kolmogorov complexity. Then Stephen Simpson investigates into relations between entropy, Hausdorff dimension, and Kolmogorov complexity and shows in his article *Symbolic dynamics: entropy = dimension = complexity* that all three notions coincide under certain assumptions.

In their article *Cryptography and algorithmic randomness*, Kohtaro Tadaki and Norihisa Doi apply concepts and techniques from algorithmic randomness in order to derive concrete and security-preserving instantiations of random oracles as they are usually presupposed in cryptographic security proofs. Finally, Vinod Vinodchandran and Marius Zimand obtain a dichotomy on compressibility by deriving, under a certain complexity-theoretical assumption, a positive result *On optimal language compression for sets in PSPACE/poly*, while showing on the other hand that members of more complex sets can only be compressed to about twice the theoretically optimum length.

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