Rank and Randomness

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(joint work with Christopher P. Porter)

We show that for each computable ordinal $\alpha > 0$ it is possible to find in each random Δ_2^0 degree a sequence R of Cantor-Bendixson rank α, while ensuring that the sequences that inductively witness R's rank are all Martin-Löf random with respect to a single countably supported and computable measure. This is a strengthening for random degrees of a recent result of Downey, Wu, and Yang, and can be understood as a randomized version of it.