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Johanna N.Y. Franklin* (johannaf@gauss.dartmouth.edu), Department of Mathematics,
6188 Kemeny Hall, Dartmouth College, Hanover, NH 03755. *Martin-Löf randomness and
Birkhoff's ergodic theorem.*

We characterize Martin-Löf randomness using Birkhoff's ergodic theorem. We show that in a computable probability space, given any computable measure-preserving map, any point that is Poincaré for this map with respect to effectively closed sets must be Birkhoff for this map with respect to effectively closed sets as well. When combined with a result of Bienvenu, Hoyrup, and Shen, this shows that a point in a computable probability space is Martin-Löf random precisely when it is Birkhoff for any computable ergodic map with respect to effectively closed sets.

This work is joint with Noam Greenberg, Joseph S. Miller, and Keng Meng Ng. (Received September 09, 2010)