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Peter J Grabner* (peter.grabner@tugraz.at), Institut für Analysis und Comp. N. Th,
Steyrergasse 30, Graz, 8010. *Fractal measures originating from number theory.*

Let $(X_n)_{n \in \mathbf{N}}$ be a sequence of independent random variables taking values 0 and 1 with equal probability. Erdős in 1939 studied the distribution of the series

$$\sum_{n=1}^{\infty} X_n \beta^{-n}$$

and showed that it is singular continuous, if β is a Pisot number less than 2. On the other hand B. Solomyak showed in 1995 that the measure is absolutely continuous for almost all $\beta \in (1, 2)$.

Recently, similar measures were encountered in the context of redundant numeration, for instance in counting the number of base 2 representations of integers using the digits $\{0, \pm 1\}$ with minimal number of non-zero digits. This leads to a generalisation, where the digits are no more independent, but are governed by a Markov chain. We give an overview over these results. (Received June 29, 2011)