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REGULARLY LOG-PERIODIC FUNCTIONS AND SOME APPLICATIONS

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Dedicated to the memory of Gyula Pap

Abstract. We prove a Tauberian theorem for the Laplace–Stieltjes transform, a Karamata-type theorem, and a monotone density theorem in the framework of regularly log-periodic functions. We provide several applications of these results: for example, we prove that the tail of a nonnegative random variable is regularly log-periodic if and only if the same holds for its Laplace transform at 0, and we determine the exact tail behavior of fixed points of certain smoothing transforms.

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