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*Rigorous uniform approximation of invariant densities for interval maps*

Various techniques have been developed for rigorous  $L^1$ - approximation of the invariant probability density associated to a nonsingular map  $T$  acting on a compact interval of the real line. Different discretization schemes may be used, including piecewise constant (Ulam), linear, quadratic etc. For uniform approximation, only piecewise linear or higher order schemes are applicable. We show how to establish rigorous approximations in this context. Our work is motivated by some escape rate formulae due to Keller and Liverani that are based on pointwise data for the invariant density of the associated closed system. We will explain this background.

This is joint work with Wael Bahsoun, School of Mathematics, Loughborough University.