Benedicks, Michael; **Misiurewicz, Michał**
Absolutely continuous invariant measures for maps with flat tops. (English) ｜Zbl 0703.58030｜
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If a smooth endomorphism of the interval with negative Schwarzian derivative and critical points of polynomial kind shows a "Misiurewicz type" dynamics, i.e. has no sinks and the forward orbits of critical points either eventually fall into the critical set, or stay away from it forever, then it was shown that the map has an absolutely continuous invariant measure. The present paper is a refinement of that result. The assumption that all critical points are of polynomial type is replaced by the condition that the logarithm of the Jacobian is integrable. The authors prove that under so weakened hypotheses the map is still bound to have an absolutely continuous invariant measure. Moreover, for unimodal maps the integrability of the logarithm of the Jacobian is a necessary condition for the existence of absolutely continuous invariant measures. The authors' methods are essentially similar to those used by Misiurewicz in the case of polynomial critical points.

Reviewer: G.Swiatek

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