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RAY SEQUENCES OF LAURENT-TYPE RATIONAL FUNCTIONS †

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Abstract. This paper is devoted to the study of asymptotic zero distribution of Laurent-type approximants under certain extremality conditions analogous to the condition of Grothmann, which can be traced back to Walsh's theory of exact harmonic majorants. We also prove results on the convergence of ray sequences of Laurent-type approximants to a function analytic on the closure of a finitely connected Jordan domain and on the zero distribution of optimal ray sequences. Some applications to the convergence and zero distribution of the best L_p approximants are given. The arising theory is similar to Walsh's theory of maximally convergent polynomials to a function in a simply connected domain.

Key words. Laurent-type rational functions, zero distributions, convergence, optimal ray sequences, best L_p approximants.

AMS subject classifications. 30E10, 30C15, 41A20, 31A15.

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