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**Poles and Alternation Points  
in Real Rational Chebyshev Approximation**

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**Abstract.** The distribution of equi-oscillation points (alternation points) for the error in best Chebyshev approximation on  $[-1, 1]$  by rational functions is investigated. In general, the alternation points need not be dense in  $[-1, 1]$  when rational functions of degree  $(n, m)$  are considered and asymptotically  $n/m \rightarrow \kappa$  with  $\kappa \geq 1$ . We show that the asymptotic behavior of the alternation points is closely related to the behavior of the poles of the rational approximants. Hence, poles of the rational approximations are attracting points of alternations such that the well-known equi-distribution for the polynomial case can be heavily disturbed.

**Keywords.** Rational approximation, alternation points.

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