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Convergent interpolation to Cauchy integrals

Laurent Baratchart

Projet Apics
INRIA Sophia Antipolis–Méditerranée
2004 route des Lucioles, BP 93
06902 Sophia Antipolis
FRANCE

`laurent.baratchart@sophia.inria.fr`

It is known after the pioneering work of H. Stahl, A. Gonchar, E. Rachmanov, P. Suetin, and A. Aptekarev that if C is an extremal arc for the logarithmic potential in some external field, and if f is the Cauchy integral with non-vanishing analytic density on that arc, then interpolation nodes can be chosen so that the multipoint Padé interpolants converge to f locally uniformly over the complement of the arc in the complex plane. In this talk, we will show that a smooth Jordan arc is an equilibrium arc for some field if and only if it is analytic, and we show in this case how to choose the interpolation points so that the multipoint Padé approximants converge, under the mere assumption that the density is Hölder smooth. Some zeroing can even occur. The proof rests on classical properties of Hankel operators with piecewise continuous symbol over the Hardy spaces H^2 of a Jordan curve.

The talk reports on joint work with Maxym Yattselev.