Maxim L Yattselev* (maximy@uoregon.edu). Nuttall’s theorem on algebraic S-contours.

Given function $f$ holomorphic at infinity, the $n$-th diagonal Padé approximant to $f$, say $[n/n]_f$, is a rational function of type $(n, n)$ that has the highest order of contact with $f$ at infinity. Equivalently, $[n/n]_f$ is the $n$-th convergent of the continued fraction representing $f$ at infinity. Nuttall’s theorem provides an asymptotic formula for $[n/n]_f$ and all $n$ large enough in the case where $f$ is the Cauchy integral of the reciprocal of a non-vanishing smooth weight with respect to the arcsine distribution on $[-1, 1]$. This talk discusses the extension of Nuttall’s theorem to Cauchy integrals on the so-called algebraic S-contours. (Received October 23, 2012)