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Maxim L. Yattselev* (maximy@uoregon.edu), Department of Mathematics, University of Oregon, Eugene, OR 97403. *Bernstein-Szegő 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. Bernstein-Szegő theorem provides an explicit non-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 polynomial with respect to the arcsine distribution on $[-1, 1]$. In this work, Bernstein-Szegő theorem is extended to Cauchy integrals on the so-called *algebraic S -contours*. (Received August 03, 2012)