1163-41-971 **Laurent Baratchart**, **Herbert Stahl** and **Maxim L. Yattselev*** (`maxyatts@iupui.edu`).
Distribution of Poles of Optimal Rational Approximants. Preliminary report.

Early in the 20th century, Walsh has shown that

$$\limsup_{n\to\infty} \inf_{r\in\mathcal{R}_n} \|f-r\|_A \leq \inf_B \exp\left\{-1/\mathrm{cap}(A,B)\right\},$$

where f is holomorphic in a neighborhood of a continuum A, $\mathcal{R}_n$ is the set of rational functions of type (n,n), $\mathrm{cap}(A,B)$ is the condenser capacity, and the infimum on the right is taken over all compact sets B such that f is holomorphic in the complement of B (the complement must be connected and necessarily contain A). In general this bound is sharp. Elaborating on the work of Stahl, Gonchar and Rakhmanov have shown that

$$\lim_{n\to\infty} \inf_{r\in\mathcal{R}_n} \|f-r\|_A = \inf_B \exp\left\{-2/\mathrm{cap}(A,B)\right\}$$

if f is a multi-valued function meromorphic outside of a compact polar set. For a subclass of such functions, asymptotic distribution of poles of sequences of rational approximants $\{r_n\}$ such that

$$\lim_{n\to\infty} \|f-r_n\|_A = \inf_B \exp\left\{-2/\mathrm{cap}(A,B)\right\},$$

where A is a continuum, will be discussed. (Received September 14, 2020)