Extremal L^1 problem for entire functions and spectral theory for canonical systems

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The following is the *résumé* of Akhiezer's paper *Uzagal'nennya odniei mimimum-zadachi Korkina-Zolotareva*:

A solution in elliptic functions is given for the following problem: among all polynomials of the form

$$P_n(x) = x^n + p_1 x^{n-1} + \cdots + p_n$$

find the one for which the value

$$\int_{-1}^{\alpha} |P_n(x)|dx + \int_{\beta}^{1} |P_n(x)|dx$$

assumes its minimum with the fixed α and β $(-1 < \alpha < \beta < 1)$.

It does not seem obvious that the famous Akhiezer's polynomials orthogonal on two intervals were first constructed in this paper (at least the *résumé* does not contain any hint in this direction). We discuss a similar problem in the classes of entire functions and explain its connections with the spectral theory for canonical systems and the Direct Cauchy Theorem in Widom domains.

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