

A Riemann Type Theorem for Segmentally Alternating Series

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In 2014, Schramm, Troutman, and Waterman introduced the notion of a segmentally alternating series. Informally, such a series is composed of segments of finite length such that within each segment the number of positive terms is equal to the number of negative terms. We show that given any divergent series $\sum a_n$ with positive terms monotonically convergent to 0 and any interval $[\alpha, \beta] \subset \overline{\mathbb{R}}$, there are continuum many segmentally alternating sign distributions (ϵ_n) such that the set of accumulation points of the sequence of the partial sums of the series $\sum \epsilon_n a_n$ is exactly the interval $[\alpha, \beta]$.