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Transcendence of Infinite Series of Rational Functions

We investigate the transcendental nature of the sum

$$\sum'_{n \in \mathbb{Z}} \frac{A(n)}{B(n)}$$

where $A(x), B(x)$ are polynomials with algebraic coefficients with $\deg A < \deg B$ and the sum is over integers n which are not zeros of $B(x)$. We relate this question to the celebrated conjectures of Gel'fond and Schneider. In certain cases, these conjectures are known, and this allows us to obtain some unconditional results of a general nature.

This is joint work with M. Ram Murty.