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Some Properties of Completely Multiplicative Signatures

A completely multiplicative signature is a function $f: \mathbb{N} \rightarrow \{1, -1\}$ such that $f(mn) = f(m)f(n)$ for all $m, n \in \mathbb{N}$. We will address properties of their summatory functions, $\sum_{n \leq x} f(n)$, as well as issues surrounding irrationality, transcendence and normality of certain numbers associated to these functions. Related examples and conjectures will be presented.

This is joint work with Peter Borwein and Stephen Choi.