The Erdős discrepancy problem for multiplicative functions supported on the squarefree integers

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Let f be an arithmetic function assuming only ± 1 values. For non-negative integers d and x, let $S(x;d) = |f(d) + f(2d) + \cdots + f(xd)|$. A question of Erdős, known as the Erdős discrepancy problem, asks if the sup of $S(x;d)$ over all x and d is infinite. This has became a Theorem by T. Tao in 2015. As a consequence, if f is a completely multiplicative function assuming only ± 1 values, then f has unbounded partial sums. In this talk I will consider similar questions for multiplicative functions supported on the squarefree integers.