

Yann Bugeaud
Université de Strasbourg
Around the Littlewood conjecture

The Littlewood conjecture in Diophantine approximation claims that every pair (α, β) of real numbers satisfies

$$\inf_{q \geq 1} q \cdot \|q\alpha\| \cdot \|q\beta\| = 0,$$

where $\|\cdot\|$ denotes the distance to the nearest integer. In 2004, de Mathan and Teulié asked the following analogous question : for a given prime number p , is it true that

$$\inf_{q \geq 1} q \cdot \|q\alpha\| \cdot |q|_p = 0$$

holds for every real number α ? Here, $|\cdot|_p$ denotes the p -adic absolute value normalized such that $|p|_p = p^{-1}$. We present recent results towards the resolution of these two problems, which are still not solved.