

# Minimizing GCD sums and applications

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## ABSTRACT

In recent years, the question of maximizing GCD sums regained interest due to its firm link with large values of  $L$ -functions, leading for instance to the breakthrough improvement of Bondarenko and Seip concerning the maximum of  $|\zeta(1/2 + it)|$ . In this talk, we address the counterpart problem of minimizing GCD sums and present several results with applications. We consider as well a related optimization question regarding the usual multiplicative energy of a subset of the first  $N$  integers. This is part of a joint work with de la Bretéche and Tenenbaum.