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The sum of digits of primes in $\mathbb{Z}[i]$

We study the distribution of the complex sum-of-digits function s_q with basis $q = -a \pm i$, $a \in \mathbb{Z}^+$ for Gaussian primes p. Inspired by a recent result of Mauduit and Rivat for the real sum-of-digits function, we here get uniform distribution modulo 1 of the sequence $\big(\alpha s_q(p)\big)$ provided $\alpha \in \mathbb{R} \setminus \mathbb{Q}$ and q is prime with $a \geq 28$. We also determine the order of magnitude of the number of Gaussian primes whose sum-of-digits evaluation lies in some fixed residue class mod m.

This is joint work with M. Drmota and J. Rivat.