

Title: Voronoï summation formula for the generalized divisor function $\sigma_z^{(k)}(n)$

Abstract: For a fixed $z \in \mathbb{C}$ and a fixed $k \in \mathbb{N}$, let $\sigma_z^{(k)}(n)$ denote the sum of z -th powers of those divisors d of n whose k -th powers also divide n . This arithmetic function is a simultaneous generalization of the well-known divisor function $\sigma_z(n)$ as well as a divisor function $d^{(k)}(n)$ first studied by Wigert. A Voronoï summation formula is obtained for $\sigma_z^{(k)}(n)$. An interesting thing to note here is that this arithmetic function does not fall under the purview of the setting of the Hecke functional function with multiple gamma factors studied by Chandrasekharan and Narasimhan. Some applications of the Voronoï summation formula will be given. This is joint work with Bibekananda Maji and Akshaa Vatwani.