

Modular Forms and k -Colored Generalized Frobenius Partitions

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Let k and n be positive integers. Let $c\phi_k(n)$ denote the number of k -colored generalized Frobenius partitions of n and $C\Phi_k(q)$ be the generating function of $c\phi_k(n)$. In this article, we study $C\Phi_k(q)$ using the theory of modular forms and discover new surprising properties of $C\Phi_k(q)$. In particular, we find alternative representations of $C\Phi_k(q)$ for $k \leq 17$ and some relations between $c\phi_k(n)$ and the ordinary partition function $p(n)$.