

1109-11-317

Zhu Cao* (zcao@kennesaw.edu), 1100 S Marietta Pkwy, Marietta, GA 30060, and **Yong Hu**.

Exact covering systems and Ramanujan's forty identities for the Rogers-Ramanujan functions.

For a nonsingular integer matrix B , we consider the the exact covering system (ECS) of \mathbb{Z}^n corresponding to the quotient group $\mathbb{Z}^n/B\mathbb{Z}^n$. We use these ECS to obtain transformations in \mathbb{Z}^n and then apply these transformations to prove identities involving functions defined on \mathbb{Z}^n . In particular, we study product identities for theta functions and show that a large portion of the forty identities for the Rogers-Ramanujan functions can be explained naturally using this approach. (Received February 04, 2015)