1155-11-528 **Frank G. Garvan*** (fgarvan@ufl.edu). *A new approach to Dyson's rank conjectures.* Preliminary report.

In 1944 Dyson defined the rank of a partition as the largest part minus the number of parts, and conjectured that the residue of the rank mod 5 divides the partitions of $5n+4$ into five equal classes. This gave a combinatorial explanation of Ramanujan's famous partition congruence mod 5. He made an analogous conjecture for the rank mod 7 and the partitions of $7n+5$. In 1954 Atkin and Swinnerton-Dyer proved Dyson's rank conjectures by constructing several Lambert-series identities basically using the theory of elliptic functions. In 2016 the author gave another proof using the theory of weak harmonic Maass forms. In this talk we describe a new and more elementary approach using Hecke-Rogers series. (Received January 21, 2020)