

1158-05-257

Marino Romero* (mar007@sas.upenn.edu), mar007@sas.upenn.edu. *Delta eigenoperators and e -positivities.*

In this talk, we will give a wide variety of e -positivity results. They arise from the study of Delta eigenoperators of the modified Macdonald basis. One of the open questions regarding Delta operators conjectures that $\Delta_{s_\lambda} e_n$ is Schur positive for any partition λ . Mark Haiman has proved this to be true for $\Delta_{s_\lambda} e_n$ by showing that it is the Frobenius image of a certain S_n -module. In particular $\Delta_{e_n} e_n$ is the Frobenius characteristic for the space of Diagonal Harmonics. Zabrocki has recently conjectured a module for $\Delta_{e_k} e_n$. However, there are no explicit Schur function expansions for any of these expressions. We will solve the problem of expanding a general expression of the form $\Delta_F G$ whenever one of the parameters q or t is set to 1. In turn, we get a surprising connection between Delta operators and parallelogram polyominoes. (Received March 02, 2020)