1078-05-103   **Adriano M. Garsia*** (`garsia@math.ucsd.edu`). *Parking functions magics of Macdonald eigen-operators.*

In a 1999 joint paper (Methods and Applications of Analysis, 6 no. 3 (1999) 363-420) we studied a family of operators defined by setting for a symmetric function F

$$\Delta_F \widetilde{H}_\mu[X; q, t] \; = \; F[B_\mu(q, t)] \widetilde{H}_\mu[X; q, t]$$

where $\{\widetilde{H}_\mu[X; q, t]\}_\mu$ is the modified Macdonald basis and $B_\mu(q, t)$ is the bi-exponent generator of the Ferrers diagram of μ. In particular, for μ a partition of n we get that $\Delta_{e_n} = \nabla$. In that paper we give a variety of positivity conjectures. Some of these conjectures can now be given a combinatorial interpretation and some time even proved by the discovery that these operators have the power of controlling the combinatorics of Parking Functions to the finest detail. This talk will cover some surprising examples of this phenomenon. (Received November 27, 2011)