1073-05-32 **Angela S Hicks*** (ashicks@math.ucsd.edu), Department of Mathematics, University of California, San Diego (UCSD), 9500 Gilman Drive # 0112, La Jolla, CA 92093, and **Yeonkyung Kim** (yeonkyung@ucsd.edu), Department of Mathematics, University of California, San Diego (UCSD), 9500 Gilman Drive # 0112, La Jolla, CA 92037. *A New Parking Function Statistic.*

In this talk, we present a new "diagonal inversion" statistic on a subset of the parking functions. First defined recursively in a recent paper by Duane, Garsia, and Zabrocki, the statistic allows an interpretation of $\langle \Delta_{h_j} C_{p_1} \dots C_{p_k} 1, e_n \rangle$ for $\{p_1, \cdots, p_k\}$ a composition of n, Δ_{h_j} a particular Macdonald eigenoperator, and C_{p_i} a modified Hall-Littlewood operator. In particular, this expression q-t counts by area and "new dinv" the set of parking functions with reading word a shuffle of $1, 2, \cdots, j$ (the small cars) and $j+1, \cdots, n$ (the big cars), where: the last car is a big car; the p_1^{th}, $p_1 + p_2{}^{\text{th}}$, ... , and $p_1 + \cdots + p_k{}^{\text{th}}$ big cars fall in the main diagonal; and the remaining big cars are *not* in the main diagonal. In particular, this gives a new combinatorial interpretation of $\langle \nabla e_n, h_j h_{n-j} \rangle$, an expression previously studied in the context of the Shuffle Conjecture. In this talk we present a non-recursive definition for the new dinv that more closely imitates the original diagonal inversion statistic as defined by Haiman. (Received July 13, 2011)