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Bruce Sagan, John Shareshian* (shareshi@math.wustl.edu) and **Michelle Wachs**. *Cyclic sieving and Eulerian quasisymmetric functions*.

For a partition λ of n , let C_λ be the conjugacy class in the symmetric group S_n consisting of all elements of cycle type λ , and set

$$A_\lambda(q) := \sum_{w \in C_\lambda} q^{\text{maj}(w) - \text{exc}(w)},$$

where maj is the major index and exc is the excedance statistic. Let $g = (12 \dots n)$, an n -cycle in S_n . Let h be a power of g having order d , and let ω_d be a primitive d^{th} root of 1. Then

$$A_\lambda(\omega_d) = |C_{S_n}(h) \cap C_\lambda|.$$

In other words, the triple $(\langle g \rangle, A_\lambda(q), C_\lambda)$ satisfies the cyclic sieving phenomenon, with the action of $\langle g \rangle$ on C_λ being by conjugation. I will explain how we proved this fact using quasisymmetric functions. (Received February 15, 2010)