1154-05-2482 **Sean T. Griffin***, stgriff@uw.edu. *Ordered set partitions, Garsia-Procesi modules, and rank varieties.* Preliminary report.

We introduce a family of ideals $I_{n,\lambda}$ in $mathbbQ[x_1,\ldots,x_n]$ for λ a partition of $k \leq n$. This family contains both the Tanisaki ideals I_λ and the ideals $I_{n,k}$ of Haglund-Rhoades-Shimozono as special cases. We study the corresponding quotient rings $R_{n,\lambda}$ as symmetric group modules. When $n = k$, we recover the Garsia-Procesi modules, and when $\lambda = (1^k)$, we recover the generalized coinvariant algebras of Haglund-Rhoades-Shimozono.

We will present a monomial basis for $R_{n,\lambda}$ in terms of (n,λ)-staircases, unifying the monomial bases studied by Garsia-Procesi and Haglund-Rhoades-Shimozono. Furthermore, we realize the S_n-module structure of $R_{n,\lambda}$ in terms of an action on (n,λ)-ordered set partitions. We will then show that the graded Frobenius characteristic of $R_{n,\lambda}$ has a positive expansion in terms of dual Hall-Littlewood functions. We also show that the rings $R_{n,\lambda}$ have connections to the rank varieties of Eisenbud-Saltman. We then generalize results of De Concini-Procesi and Tanisaki on "nilpotent" diagonal matrices. (Received September 17, 2019)