

**Marshall University Math Colloquium**

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“The topology of restricted partition posets.”

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**Abstract**

For each composition  $\vec{c}$  we show that the order complex of the poset of pointed set partitions  $\Pi_{\vec{c}}^{\bullet}$  is a wedge of  $\beta(\vec{c})$  spheres of the same dimensions, where  $\beta(\vec{c})$  is the number of permutations with descent composition  $\vec{c}$ . Furthermore, the action of the symmetric group on the top homology is isomorphic to the Specht module  $S^B$  where  $B$  is a border strip associated to the composition  $\vec{c}$ . We also study the filter of pointed set partitions generated by knapsack integer partitions and show the analogous results on homotopy type and action on the top homology.

This is joint work with Richard Ehrenborg.