

1116-05-1795      **Jay Schweig** and **Russ Woodroffe\*** (rwoodroffe@math.msstate.edu). *Order congruence lattices are shellable.*

The lattice of order congruences of a poset  $P$  is the subposet  $O(P)$  of the lattice of partitions of  $P$ , consisting of all partitions that satisfy a certain order-convexity type property. The partition lattice is both semimodular and supersolvable, but Körtesi, Radelecki and Szilágyi gave examples of order congruence lattices that are not semimodular, and we find examples that are not supersolvable.

We show that the order congruence lattices satisfy a recursive condition on the existence of modular elements, and use this modularity condition to show shellability. This result improves a weaker result of Jenča and Sarkoci. We also can recover several other shellability results on subposets of the partition lattice with a similar proof.

This is joint work with Jay Schweig. (Received September 21, 2015)