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Michael Weselcouch* (mweselc@ncsu.edu) and **Ricky Ini Liu**. *The combinatorics of the P -partition generating function and its irreducibility.*

The P -partition generating function of a (naturally labeled) poset P is a quasisymmetric function enumerating order-preserving maps from P to \mathbb{Z}^+ . Using the Hopf algebra of posets, we give necessary conditions for two posets to have the same generating function. In particular, we show that they must have the same number of antichains of each size, as well as the same shape (as defined by Greene). We also show that the P -partition generating function of a connected poset is irreducible. (Received September 24, 2018)