



# YMC 2006



## Young Mathematicians Conference 2006

*August 4<sup>th</sup>-6<sup>th</sup> at The Ohio State University.*

### COMBINATORIAL FORMULAS FOR AN INVOLUTION POSET

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**Abstract of Report Talk:** Weyl groups generalize permutation groups and are useful in many branches of mathematics. For a Weyl Group  $W$ , the set of involutions is  $I = \{w \in W | w = w^{-1}\}$ . We studied a poset of involutions of the Weyl groups  $A_n$  and  $B_n$ , generated in the manner described by Haas and Helminck. We first give a formula for the rank of any element and use it to define a generating polynomial for the number of elements of each rank in both posets. We then propose a formula for the number of paths to the top-most element using Young Tableaux, based on the work of Stanley, Edelman, and Greene. We also give a combinatorial formula for the number of paths to other specific elements. In the last part of our talk, we discuss several interesting related results about the posets. [CC11120533]

[Joint work with Ruth Haas]

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