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$\$h\$$ -Vectors of Generalized Associahedra and Noncrossing Partitions

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***h*-VECTORS OF GENERALIZED ASSOCIAHEDRA AND NONCROSSING PARTITIONS**

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ABSTRACT. A uniform proof is given that the entries of the h -vector of the cluster complex $\Delta(\Phi)$, associated by S. Fomin and A. Zelevinsky to a finite root system Φ , count elements of the lattice \mathbf{L} of noncrossing partitions of corresponding type by rank. Similar interpretations for the h -vector of the positive part of $\Delta(\Phi)$ are provided. The proof utilizes the appearance of the complex $\Delta(\Phi)$ in the context of the lattice \mathbf{L} in recent work of two of the authors, as well as an explicit shelling of $\Delta(\Phi)$.

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