

2006

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

Colum Watt

Technological University Dublin, colum.watt@dit.ie

Thomas Brady

Dublin City University, thomas.brady@dcu.ie

Christos A. Athanasiadis

University of Athens, caath@math.uoa.gr

See next page for additional authors

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Recommended Citation

Watt, C., Brady, T. & Athanasiadis, C. (2007). $\$h\$$ -Vectors of Generalized Associahedra and Noncrossing Partitions. *International Mathematical Research Notices*, vol. 1, no. 29, article ID 69705. doi:10.1155/IMRN/2006/69705

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Authors

Colum Watt, Thomas Brady, Christos A. Athanasiadis, and Jon McCammond

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

CHRISTOS A. ATHANASIADIS, THOMAS BRADY, JON MCCAMMOND,
AND COLUM WATT

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 $\Delta(\Phi)$.

This article has appeared in International Mathematical Research Notices, (2007), article ID 69705.

DEPARTMENT OF MATHEMATICS (DIVISION OF ALGEBRA-GEOMETRY), UNIVERSITY OF ATHENS, PANEPISTIMIOUPOLIS, 15784 ATHENS, GREECE
E-mail address: caath@math.uoa.gr

SCHOOL OF MATHEMATICAL SCIENCES, DUBLIN CITY UNIVERSITY, GLASNEVIN, DUBLIN 9, IRELAND
E-mail address: tom.brady@dcu.ie

MATHEMATICS DEPARTMENT, UNIVERSITY OF CALIFORNIA, SANTA BARBARA, SANTA BARBARA, CA 93106, U.S.A
E-mail address: jon.mccammond@math.ucsb.edu

SCHOOL OF MATHEMATICAL SCIENCES, DUBLIN INSTITUTE OF TECHNOLOGY, DUBLIN 8, IRELAND
E-mail address: colum.watt@dit.ie

Date: June 20, 2006, Final Version 26/6/06.

2000 Mathematics Subject Classification. Primary 20F55; Secondary 05E99.