Polytopes and Plethysm

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Plethysm coefficients are important structural constants in the representation theory of the symmetric groups and general linear groups. Remarkably, some sequences of plethysm coefficients stabilize (they are ultimately constants). These results were proved by Brion in [2], and Thibon and Carré in [1]. We have given a new proof of those stability properties. Our new proofs are purely combinatorial: we decompose plethysm coefficients as a alternating sum of terms counting integer points in polytopes, and exhibit bijections between these sets of integer points. More details about the results can be found in [3].

Referencias

[1] Carré, Christophe and Thibon, Jean-Yves: Plethysm and vertex operators. *Adv. in Appl. Math.* **13** (4) (1992), 390–403.

[2] Brion, Michel: Stable properties of plethysm: on two conjectures of Foulkes. *Manuscripta Math.* **80** (4) (1993), 347–371.

[3] Colmenarejo, Laura: Stability Properties Of The Plethysm: A Combinatorial Approach. *arXiv:1505.03842*

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