MATROID CHERN-SCHWARTZ-MACPHERSON CYCLES AND TUTTE ACTIVITIES

SPENCER BACKMAN

Abstract. Lopéz de Medrano-Rincón-Shaw defined Chern-Schwartz-MacPherson cycles for an arbitrary matroid M and proved by an inductive geometric argument that the unsigned degrees of these cycles agree with the coefficients of $T(M;x,0)$, where $T(M;x,y)$ is the Tutte polynomial associated to M. Ardila-Denham-Huh recently utilized this interpretation of these coefficients in order to demonstrate their log-concavity. We provide a direct calculation of the degree of a matroid Chern-Schwartz-MacPherson cycle by taking its stable intersection with a generic tropical linear space of the appropriate codimension and showing that the weighted point count agrees with the Gioan-Las Vergnas refined activities expansion of the Tutte polynomial.

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