

Representations on the cohomology of the moduli space of pointed rational curves, permutation representations and log concavity

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The Chow ring of the graphical matroid of the complete graph with $n-1$ vertices (with respect to the minimal building set) is isomorphic to that of the moduli space of n -pointed rational curves. Therefore, it is naturally a graded representation of the n -th symmetric group.

In this talk, we provide a closed-form formula for this representation, in terms of weighted rooted trees, which we introduce as combinatorial gadgets. Using this, we explore the positivity of this representation as a permutation representation, and the asymptotic log concavity of the multiplicities of the trivial representation. We will also discuss about the multiplicities of the other irreducible representations.

Based on joint works with Jinwon Choi and Young-Hoon Kiem.

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