

Polynomial automorphisms of \mathbb{C}^n preserving the Markoff-Hurwitz equations: dynamics and identities.

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We will discuss the dynamics of the action of the Coxeter group G_n on \mathbb{C}^n generated by involutions g_i which changes the i -th coordinate and fixes all the other coordinates such that the Markoff-Hurwitz equation $x_1^2 + x_2^2 + \dots + x_n^2 = x_1 x_2 \dots x_n$ is left invariant. In particular we describe a (non-empty) domain of discontinuity for this action, and also prove some new identities for the orbits of an element in the domain of discontinuity under this group action. This is joint work with Hengnan Hu and Ying Zhang.