

On the Smith normal form of the Varchenko matrix*

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Abstract

Let \mathcal{A} be a hyperplane arrangement in \mathbb{A} isomorphic to \mathbb{R}^n . Let V_q be the q -Varchenko matrix for the arrangement \mathcal{A} with all hyperplane parameters equal to q . In this paper, we consider three interesting cases of q -Varchenko matrices associated to hyperplane arrangements. We show that they have a Smith normal form over $\mathbb{Z}[q]$.

Keywords: Hyperplane arrangement, Smith normal form, Varchenko matrix.

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Smithova normalna oblika Varchenkove matrike*

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Povzetek

Naj bo \mathcal{A} sestav hiperravnin v prostoru \mathbb{A} izomorfnem \mathbb{R}^n . Naj bo V_q q -Varchenkova matrika za sestav \mathcal{A} , ki ima vse hiperravninske parametre enake q . V tem članku obravnavamo tri zanimive primere q -Varchenkovih matrik, pridruženih sestavom hiperravnin. Dokažemo, da imajo Smithovo normalno obliko nad $\mathbb{Z}[q]$.

Ključne besede: Sestav hiperravnin, Smithova normalna oblika, Varchenkova matrika.

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