GALOIS GROUPS OF PROJECTIONS

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ABSTRACT. The uniform position principle states that, given an irreducible nondegenerate curve $C \subset \mathbb{P}^r(\mathbb{C})$, a general $(r-2)$-plane $L \subset \mathbb{P}^r$ is *uniform*, that is, projection from L induces a rational map $C \dashrightarrow \mathbb{P}^1$ whose monodromy group is the full symmetric group. In this paper we first show the locus of non-uniform $(r-2)$-planes has codimension at least two in the Grassmannian. This result is sharp because, if there is a point $x \in \mathbb{P}^r$ such that projection from x induces a map $C \dashrightarrow \mathbb{P}^{r-1}$ that is not birational onto its image, then the Schubert cycle $\sigma(x)$ of $(r-2)$-planes through x is contained in the locus of non-uniform subspaces. For a smooth curve C in $\mathbb{P}^3$, we show any irreducible surface of non-uniform lines is a Schubert cycle $\sigma(x)$ as above, unless C is a rational curve of degree three, four or six.