Projective equivalences and μ-bases of rational curves in any dimension.

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The notion of a μ-basis was developed several years ago in the context of curves implicitization [2]. From a geometric point of view, a μ-basis of a rational curve in $\mathbb{R}^n$ is a set of n rational curves of smaller degree, that can replace the original curve for several operations like implicitizing, detecting properness, inverting, etc [2, 4, 5]. On the other hand, projective equivalences between rational curves in $\mathbb{R}^n$ have been studied in recent years [1, 3]. The algorithms for checking projective equivalence depend heavily on the degrees of the curves to be analyzed. In this talk, we will show how projective equivalences between rational curves in $\mathbb{R}^n$ are transferred to the elements of smallest degree of the μ-bases of the curves. These elements of smallest degree can be found without computing the whole μ-basis. As a result, we have a way to reduce the cost of computing the projective equivalences between rational curves in $\mathbb{R}^n$ by replacing the given curves for the curves represented by the elements of smallest degree of the μ-bases of the curves, which have a much smaller degree compared to the original degree of the curves.

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