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Some results on the Koras–Russell cubic threefold

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The Koras–Russell cubic threefold is the hypersurface of affine complex four-space, defined as the zero set of the polynomial $P = x^2y + z^2 + t^3 + x$. It is a smooth contractible rational affine variety, which is not isomorphic to affine three-space. We will discuss work done in collaboration with A. Dubouloz and P.M. Poloni on the study of the automorphism group of this variety and of certain other related threefolds. We show, in particular, that the Koras–Russell cubic threefold has non-equivalent embeddings in affine four-space.