## FLEXIBLE VARIETIES

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ABSTRACT. Given an affine algebraic variety X of dimension  $n \geq 2$ , we let SAut(X) denote the special automorphism group of X i.e., the subgroup of the full automorphism group Aut(X) generated by all one-parameter unipotent subgroups. We show that if SAut(X) is transitive on the smooth locus  $X_{\text{reg}}$  of X then it is infinitely transitive on  $X_{\text{reg}}$ . In turn, the transitivity is equivalent to the flexibility of X. The latter means that for every smooth point  $x \in X_{\text{reg}}$  the tangent space  $T_x X$  is spanned by the velocity vectors at x of one-parameter unipotent subgroups of Aut(X). We provide different applications and examples.

This is a report on a joint work with Ivan Arzhantsev, Hubert Flenner, Shulim Kaliman, Karine Kuyumzhiyan, and Frank Kutzschebauch.