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AN ELEMENTARY PROOF OF THE HILBERT–MUMFORD CRITERION*

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Abstract. An elementary proof of the Hilbert–Mumford semistability criterion is given that is valid over $\mathbb{C}$. The proof of the criterion is deduced from an elementary lemma in linear algebra that may be of independent interest.

Key words. Semistability criterion, Algebraic one-parameter groups.

AMS subject classifications. 20G20, 14A25

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