Mathematics > Algebraic Geometry

Existence of good moduli spaces for A_k-stable curves

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We prove a general criterion for an algebraic stack to admit a good moduli space. This result may be considered as a weak analog of the Keel-Mori theorem, which guarantees the existence of a coarse moduli space for a separated Deligne-Mumford stack. We apply our result to prove that the moduli stacks of A_k and A_k^+-stable curves admit good moduli spaces. In forthcoming work, we will prove that these moduli spaces are projective and use them to construct the second flip in the log minimal model program for M_g.

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