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Stable logarithmic maps to Deligne-Faltings pairs. II. (English) Zbl 1321.14025
Asian J. Math. 18, No. 3, 465-488 (2014).

Let $\mathcal{K}_\Gamma(Y)$ be the stack parametrizing stable logarithmic maps of log-smooth curves into a logarithmic scheme Y with the relevant numerical data Γ , such as genus, marked points, curve class and other indicators (contact orders), related to the logarithmic structure. It was proved in [*Q. Chen*, *Ann. Math.* (2) 180, No. 2, 455–521 (2014; [Zbl 1311.14028](#))] that $\mathcal{K}_\Gamma(Y)$ is algebraic and proper when the logarithmic structure of Y is given by a line bundle with a section, and more generally in [*M. Gross* and *B. Siebert*, *J. Am. Math. Soc.* 26, No. 2, 451–510 (2013; [Zbl 1281.14044](#))]. The motivating case in [[Zbl 1311.14028](#)] is that of a pair $(\underline{Y}, \underline{D})$, where \underline{D} is a smooth divisor in the smooth locus of the scheme \underline{Y} underlying Y . Based on this special case, in the paper under review the authors observe that one can give a “pure-through” proof of algebraicity and properness of the stack $\mathcal{K}_\Gamma(Y)$ whenever Y is a Deligne-Faltings logarithmic structure (Theorem 2.6). This observation covers a number of the cases of interest, such as a variety with a simple normal crossings divisor, or a simple normal crossings degeneration of a variety with a simple normal crossings divisors. The authors further extend the result to some more general settings (Theorems 3.15 and 5.7).

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MSC:

- [14H10](#) Families, moduli of curves (algebraic)
- [14N35](#) Gromov-Witten invariants, quantum cohomology, Gopakumar-Vafa invariants, Donaldson-Thomas invariants (algebraic-geometric aspects)
- [14D23](#) Stacks and moduli problems
- [14A20](#) Generalizations (algebraic spaces, stacks)

Cited in **3** Reviews
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Keywords:

[moduli spaces](#); [logarithmic structures](#)

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