

## Global Frobenius liftability II: surfaces and Fano threefolds

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**Abstract.** In this article, a sequel to *Global Frobenius liftability I*, we continue the development of a comprehensive theory of Frobenius liftings modulo  $p^2$ . We study compatibility of divisors and closed subschemes with Frobenius liftings, Frobenius liftings of blow-ups, descent under quotients by some group actions, stability under base change, and the properties of associated  $F$ -splittings. Consequently, we characterise Frobenius liftable surfaces and Fano threefolds in large characteristic, confirming the conjecture stated in our previous paper.

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