

On families of cubic split Thue equations parametrised by linear recurrence sequences

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Abstract. Let $(A_n)_{n \in \mathbb{N}}, (B_n)_{n \in \mathbb{N}} \in \mathbb{Z}^{\mathbb{N}}$ be two linear-recurrent sequences that meet a dominant root condition and a few more technical requirements. We show that the split family of Thue equations

$$|X(X - A_n Y)(X - B_n Y) - Y^3| = 1$$

has but the trivial solutions $\pm\{(0, 1), (1, 0), (A_n, 1), (B_n, 1)\}$, if the parameter n is larger than some effectively computable constant.

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