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Toronto, Ontario M5S 2E4, Canada. *Reducibility of skew-product systems with Brjuno base flows.*

Recently, renormalization methods have been developed that are well-suited for dealing with problems in dynamics involving small divisors. By a scaling of the phase space, one transforms them into large divisors that can be eliminated by a coordinate change. In this paper, we construct a renormalization scheme that applies to the problem of the local reducibility of analytic skew-product flows on $\mathbb{T}^d \times \mathrm{SL}(2, \mathbb{R})$. A similar renormalization scheme has been applied to the problem of the existence of quasi-periodic motion (invariant tori) in families of near-integrable vector fields. In the case of skew-product flows, we show that there is a codimension three stable manifold of vector fields that approach an integrable limit set under renormalization, and that all vector fields on the stable manifold are reducible. We apply the method to prove a reducibility theorem for families of skew-product flows with Brjuno base frequency vectors. Earlier results for skew-product flows, such as the pioneering work by Dinaburg and Sinai, primarily focus on particular families and Diophantine frequencies. (Received September 14, 2008)