1117-37-205   **Mikel Viana*** (`mviana3@gatech.edu`) and **Rafael de la Llave**. *Almost-Reducibility for fibered holomorphic dynamics.*

We consider fibered holomorphic dynamics generated by the skew product

$$F : \mathbb{C}^n \times \mathbb{T}^d \longrightarrow \mathbb{C}^n \times \mathbb{T}^d$$
$$F(z, \theta) = (f(z, \theta), \theta + \omega)$$

which has as base the irrational translation T_ω on the torus $\mathbb{T}^d$.

F has no fixed point nor a periodic orbit: The invariant object that organizes the dynamics is an invariant torus $K : \mathbb{T}^d \to \mathbb{C}^n$. A Nash-Moser iteration has been developed to efficiently construct such tori, given an approximately invariant torus K_0. It is necessary to add parameters to the system if we want to preserve the frequency.

The asymptotic properties of the derivative cocycle

$$A_{K_0}(\theta) := Df(K_0(\theta), \theta),$$

play a crucial role. We allow central directions E^c for the action of A_{K_0}, and use the notion of approximate reducibility to perform a KAM step. Here some Diophantine conditions (called Melnikov conditions) appear, but it turns out that these conditions are not strictly necessary for the construction of K: We will see that one can still construct non-reducible invariant tori K near K_0. (Received January 17, 2016)