KAM FOR THE NON-LINEAR SCHRÖDINGER EQUATION

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ABSTRACT. We will present a recent work (joint with S. Kuksin) on the perturbation theory of finite-dimensional KAM-tori for the non-linear Schrödinger equation in dimension d (with periodic boundary conditions). The difficulties to apply a KAM-approach to this equation are substantial for $d \geq 2$, and its "Töplitz-Lipschitz"-property is essential to handle these difficulties. Our result improves on a previous result of Bourgain which gives the existence of quasi-periodic solutions for this equation.

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