

**GENERICITY OF LOCHAK RESONANT ESTIMATES
FOR PARTIALLY CONVEX QUASI INTEGRABLE
HAMILTONIAN SYSTEMS.
APPLICATION TO FPU CHAINS**

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In the 70's, Nekhoroshev proved that for an analytic nearly integrable Hamiltonian system, the action variables of the unperturbed Hamiltonian remain nearly constant over an exponentially long time with respect to the size of the perturbation, provided that the unperturbed Hamiltonian satisfies some generic transversality condition known as "steepness".

In 1990, Lochak proved that in finite but exponentially large intervals of time the resonances contribute to the stability of motion provided that the unperturbed Hamiltonian is convex. More precisely, a rigorous local version Nekhoroshev theorem was proved in case of convexity which implies that the stability time increases under resonance conditions.