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INTRODUCTION TO KAM (KOLMOGOROV-ARNOLD-MOSER)
METHOD AND ITS APPLICATIONS TO RIGIDITY OF GROUP
ACTIONS

Weeks 2-3: 4-16 July, 6 double lectures (each lecture is 45-50 minutes).

Abstract: We consider a broad class of partially hyperbolic algebraic actions of higher-rank abelian groups. Those actions appear as restrictions of full Cartan actions on homogeneous spaces of Lie groups and their factors by compact subgroups of the centralizer. The common property of those actions is that hyperbolic directions generate the whole tangent space. For these actions we prove differentiable rigidity for perturbations of sufficiently high regularity. The method of proof is KAM type iteration scheme. The principal difference with previous work that used similar methods is very general nature of our proofs: the only tool from analysis on groups is exponential decay of matrix coefficients and no specific information about unitary representations is required.