FACULTY OF NUCLEAR SCIENCES AND PHYSICAL ENGINEERING CTU IN PRAGUE

CAAS

CENTRE OF ADVANCED APPLIED SCIENCES

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KAM stability of quantum symmetries

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We show that for any finite-dimensional quantum systems the conserved quantities can be characterized by their robustness to small perturbations: for fragile symmetries, small perturbations can lead to large deviations over long times, while for robust symmetries, their expectation values remain close to their initial values for all times. This is in analogy with the celebrated Kolmogorov-Arnold-Moser theorem in classical mechanics.

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