Contribution ID: **171** Type: **Oral talk (15 min + 5 min questions)**

Optimal bounds on the speed of subspace evolution governed by a time-dependent Hamiltonian

Friday, 15 July 2022 10:20 (20 minutes)

By a quantum speed limit one usually understands an estimate on how fast a quantum system can evolve between two distinguishable states. The most known quantum speed limit is given in the form of the celebrated Mandelstam-Tamm inequality that bounds the speed of the evolution of a state in terms of its energy dispersion. In contrast to the basic Mandelstam-Tamm inequality, we are concerned not with a single state but with a (possibly infinite-dimensional) subspace which is subject to the Schroedinger evolution. By using the concept of maximal angle between subspaces we derive optimal bounds on the speed of such a subspace evolution. Our present study extends the results obtained in [1,2] for time-independent Hamiltonians to the case of subspace evolution governed by a (possibly unbounded) *time-dependent* Hamiltonian.

[1] S.Albeverio and A.K.Motovilov, *Quantum speed limits for time evolution of a system subspace*, Particles & Nuclei (to appear); arXiv:2011.02778.

[2] S.Albeverio and A.K.Motovilov, *Optimal bounds on the speed of subspace evolution*, J. Phys. A: Math. Theor. (to appear); arXiv:2111.05677.

The speaker is a student or young scientist

No

Section

1. Nuclear structure: theory and experiment

Primary author: MOTOVILOV, Alexander K. (BLTP, JINR, Dubna)

Presenter: MOTOVILOV, Alexander K. (BLTP, JINR, Dubna)

Session Classification: Nuclear structure: theory and experiment