Coordinators: Prof. Alexey Karapetyants, Prof. Vladislav Kravchenko

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14 April 2022, 6 pm (UTC+3)

Mathematical problems in the theory of topological insulators

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The talk is devoted to the theory of topological insulators - a new and actively developing direction in solid state physics. The insulators of this type are characterized by having wide energy gap stable under small deformations which motivates the usage of topological methods in their study. A key role in the investigation of topological insulators is played by the analysis of their symmetry groups which was used by Kitaev to obtain their complete classification.

In this talk we pay main attention to the topological insulators invariant under time reversion. Such insulators are characterized by the Kramers effect, i.e. the double degeneration of the eigenvalues or the system. Grace to this effect it is possible to define the topological invariants defined modulo $\mathbb{Z}_2$.

*Seminar website: https://msrn.sfedu.ru/sl. The seminar uses Microsoft Teams online platform.
Please send questions to ademp.seminar@gmail.com (Tatiana Andreeva, scientific secretary).

The seminar is organized by the Regional Mathematical Center of the Southern Federal University in collaboration with Institute of Mathematics, Mechanics and Computer Sciences of the Southern Federal University and the special Interest ISAAC-OTHA group in Operator Theory and Harmonic Analysis.

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