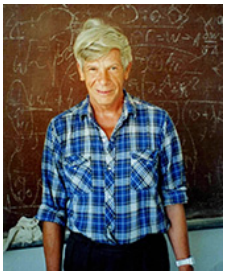

Contribution ID: **68** Type: **Plenary Talk**

Temperature and Time dependent at finite temperature Green functions. Features and results of applications.

Wednesday, 12 October 2022 12:00 (45 minutes)

Time dependent at finite temperature Green functions were used to describe the dynamics of the phase transition of quantum Bose systems to the superfluid state. The obtained renormalization group results contradict the currently accepted dynamic stochastic model E for this phenomenon. With the help of Temperature Green functions, a new model of the phase transition of Fermi systems to the superconducting state was created. The renormalization group results testify in favor of a high phase transition temperature in layered or heterogeneous conductors, which is confirmed experimentally.

General issues of introduction of temperature Green's functions are also discussed.
It is common opinion that the rotation into the Euclidean
space turns quantum field theory into an equilibrium
statistical physics. But each classical science corresponds to a set of quantum ones. The statistical equilibrium theory corresponds to the single correct only. The report will show that equilibrium statistical physics not only loses the property of Lorentz invariance (due to the use of a co-moving coordinate system), but also fundamentally distinguishes between "partitial" and "wave" descriptions of systems (in the sense of formalisms of the first and second order in time). It is argued that preference should be given to the first-order formalism, which rejects oscillatory types models.

Primary author: NALIMOV, Mikhail (SPdU, JINR)

Co-authors: HONKONEN, Juha; KOMAROVA, Marina; KOMPANIETS, Mikhail; MOLOTKOV, Yurij; KALAGOV, Georgij

Presenter: NALIMOV, Mikhail (SPdU, JINR)

Session Classification: Plenary Session

Track Classification: Section C: Field theoretical methods in statistical physics