

**Colloquium by Yuri Orlov**

**Department of Higher Mathematics of MIPT**

**Keldysh Institute of Applied Mathematics of RAS**

**Title: Linear Quantization and Wigner Function for Hamiltonian Systems**

**Abstract:**

Definition and various mathematical aspects of linear quantization of Hamiltonian systems will be considered. It will be shown that Wigner function depends on quantization rule, so the evolution equation for this function also depends on the method of arrangement of non-commuting coordinate and momentum operators in the corresponding product. The method of construction of equilibrium quantum density matrix and corresponding Wigner function, using Feynman formulae for finite-time approximations of semigroup will be discussed.