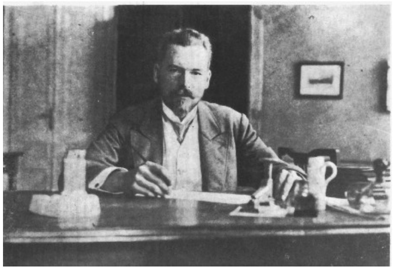

Contribution ID: **39** Type: **Poster**

Instabilities in helical magnetohydrodynamic turbulence: two-loop approach

Tuesday, September 26, 2023 4:44 PM (1 minute)

Magnetohydrodynamic (MHD) turbulence driven by the stochastic Navier-Stokes equation always has been a subject of intense study. In an electrically conducting media developed turbulence has a number of specific properties associated with magnetic field fluctuations which under certain conditions can increase and lead to the formation of a non-zero average large-scale magnetic field. This effect is known as a turbulent dynamo and is associated with the conservation of magnetic helicity. It is especially pronounced in systems with violated parity. Our research uses field-theoretic methods to propose a general scenario for the generation of arising homogeneous magnetic fields due to the mechanism of spontaneous symmetry breaking. We perform high-order calculations of self-energy Feynman diagrams responsible for the generation of a homogeneous magnetic field and its renormalization. In order to refine earlier one-loop results for the value of spontaneous magnetic field and deformation of Alfven waves in this model, we employ two-loop calculations. The investigation herewith focuses on studying the system's stability, which is necessary for the self-consistency of previously made predictions about the mechanism of system stabilization.

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Session Classification: Poster Session