

**The 144th HENPIC seminar by Dr. Ziyue Wang 王梓岳 (Tsinghua University), July 15, 2021, Thursday, 10:30 am (UTC+8)**

Talk title: Damping and polarization rates in near equilibrium spin transport

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Speaker: Dr. Ziyue Wang, Tsinghua University

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Abstract:

The collision terms in spin transport theory are analyzed in Kadanoff-Baym formalism for systems close to equilibrium. The non-equilibrium fluctuations in spin distribution include both damping and polarization, with the latter arising from the exchange between orbital and spin angular momenta. The damping and polarization rates or the relaxation times are expressed in terms of various Dirac components of the self-energy. Unlike the usually used Anderson-Witting relaxation time approximation assuming a single time scale for different degrees of freedom, the polarization effect is induced by the thermal vorticity and its time scale of thermalization is different from the damping. The numerical calculation in the Nambu–Jona-Lasinio model shows that, charge is thermalized earlier and spin is thermalized later.

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About the speaker:

Ziyue Wang got her PhD in Tsinghua University in 2019, now continues her research in Tsinghua University as a PostDoc. Her research interests include QCD phase transition and transport phenomenon.

**Presenter:** Dr WANG, Ziyue