



東北大学 宇宙創成物理学国際共同大学院プログラム

GP-PU (Graduate Program on Physics for the Universe) Seminar

“The thermodynamics of irreversible processes: Hydrodynamics with quantum anomaly”

by Masaru Hongo (Niigata University)

Time and Date: 13:00-15:00, June 8th, 2022

Place: Room 745, Science Complex B H03 (hybrid)

Registration: "<https://us02web.zoom.us/meeting/register/tZwvfutrzksGtxQSV32IKd-IVc5qfJcxBfl>"

▶ Abstract

In this short lecture, I will introduce thermodynamics of irreversible processes, which is a general method to derive the equation of motion for macroscopic systems (or low-energy effective theory from a field theoretical viewpoint) respecting the second law of thermodynamics. After explaining the classical application to charge diffusion, I will cover its modern application to relativistic systems with quantum anomaly. In particular, I will give a phenomenological derivation of the nondissipative transport phenomena, called the chiral magnetic effect and chiral vortical effect, induced by underlying chiral anomaly.

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