

# 第26回 RESCEU コロキウム



東京大学大学院理学系研究科 附属ビッグバン宇宙国際研究センター

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場 所: 理学部4号館1階ピロティ RESCEU セミナー室

講 師: Kohei Kamada 氏 (IBS-CTPU)

## Cosmological Magnetic Fields: a Frontier in Cosmology and Particle Physics

Recent observations of gamma-ray from blazars by Fermi-LAT identified the deficit of secondary cascade GeV photons. A natural explanation is intergalactic magnetic fields, which bend the direction of the cascade. This motivates to explore the possibilities that magnetic fields are generated in the early Universe. In particular, helical (hyper)magnetic fields before the electroweak symmetry breaking are interesting objects since they interact with the Standard Model fermions nontrivially through the chiral anomaly. Thus cosmological magnetic fields can be a possible field of study both in cosmology and particle physics. In this talk, I will discuss the impact of the chiral plasma instability that is caused by the chiral magnetic effect on the generation of cosmological magnetic fields and explore their possible connection to the baryon asymmetry of the Universe. I will show that the baryogenesis model from SU(5) Grand Unified Theory, which has been thought not to work, can be an indirect origin of the present baryon asymmetric Universe through these phenomena.

興味をお持ちの方の聴講を歓迎致します。お茶とお菓子を用意しております。