

Particle Cosmology through the Cosmic Microwave Background

Masashi Hazumi

*Institute of Particle and Nuclear Studies (IPNS), High Energy Accelerator Research
Organization(KEK), Japan
Physics Department and Center for High Energy and High Field (CHiP), National Central University,
Taiwan*

Email: masashi.hazumi@kek.jp

Particle cosmology aims to uncover the fundamental laws governing the Universe. Our research today is driven by five major mysteries: cosmic inflation, baryon asymmetry, neutrino properties, dark matter, and dark energy. Solving any of these will revolutionize our picture of the Universe.

Among the various observational approaches, measurements of the cosmic microwave background play a central role. After a brief overview of past observational results, I will present the CMB observation projects in which I am involved, highlighting the Simons Observatory and LiteBIRD.

Finally, I will discuss the synergy between CMB and gravitational-wave observations.