

# 第 44 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

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## Cosmic TeVatrons, PeVatrons, and ZeVatrons

### Abstract

Cosmic Rays constitute, after the matter, radiation and magnetic fields, the 4th substance of the visible Universe. The Cosmic Ray factories, the sites where relativistic electrons, protons and nuclei are produced/accelerated, are linked to almost all types of astronomical objects - from stars to pulsars and supernova remnants, from Active Galactic Nuclei to Galaxy Clusters. Some of these factories are characterised by extreme (close to 100 %) efficiencies in the sense of both (i) conversion of the available energy in different initial forms (e.g. the rotational energy of pulsars and black holes and kinetic energy of supernovae explosions and accretion shocks) to nonthermal relativistic plasma and (ii) boosting the energy of individual particles to the absolute limits allowed by theory. I will discuss the properties of several types of TeVatrons and PeVatrons in the context of recent gamma-ray observations, and ZeVatrons in the context of highest energy Cosmic Rays.

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