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HIGH ENERGY ACCELERATOR RESEARCH ORGANIZATION  
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## Seminar

# Relativistic Jets Driven by Black Holes (in English)

SPEAKER : Dr. Kenji Toma

(Frontier Research Institute for Interdisciplinary Sciences, Tohoku University)

DATE : June 8th (Thu.) 15:30-

PLACE : Kenkyu Honkan 1F, Meeting Room 1

Relativistic Jets are collimated plasma outflows with speeds close to the light speed from the vicinities of black holes, and observed in association with some active galaxies and gamma-ray bursts. They could be the emitters of high-energy cosmic-rays, high-energy neutrinos, and gravitational waves. In spite of the significant progress in recent years, there are still many unresolved key issues concerning the energy injection, mass injection, acceleration, collimation, and energy dissipation/emission mechanisms of jets. This talk reviews the current theoretical framework for solving those issues and then focuses on the energy injection mechanism, in particular the Blandford-Znajek process, i.e., steady electromagnetic energy injection by rotating black holes themselves. Physical differences among this process, pulsar winds, and mechanical Penrose process are discussed.

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