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## Fast Radio Bursts in the Fireball Paradigm

*Friday, December 15, 2023 2:58 PM (20 minutes)*

Fast radio bursts (FRBs) are the brightest radio transients in the universe. Since their unexpected discovery in the 21st century, their extreme nature has become one of the biggest mysteries in astrophysics. FRBs also serve as unique probes of the universe, opening up a new field of FRB cosmology. In 2020, Galactic FRBs were detected originating from magnetar bursts, pinning down one of the origins of FRBs. In this talk, I will explore the mechanisms for transferring energy from the surface of a neutron star to the emission site of FRBs in the fireball paradigm. A fireball expands along magnetic field lines, converting thermal energy to kinetic energy and X-ray bursts. Additionally, the fireball interacts with Alfvén waves launched from the surface through parametric instability. I will discuss the implications of these processes for FRBs.

**Primary author:** IOKA, Kunihito (Yukawa Institute for Theoretical Physics, Kyoto University)

**Presenter:** IOKA, Kunihito (Yukawa Institute for Theoretical Physics, Kyoto University)

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