

KMI Colloquium

Mysterious fast radio bursts and implication from magnetars to their origins



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Note the start time is 1 hour earlier

Zoom <https://zoom.us/j/91053499636>

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Abstract:

In 2001, the Park observatory detected a mysterious radio spike with milliseconds' duration from the direction to the Magellanic cloud, which was called "Lorimer Burst" after its discoverer. The number of similar radio transients has been gradually and later rapidly increased, and called "Fast Radio Bursts (FRBs)." The observational characteristics of FRBs indicate the cosmological distance to its unknown sources. Now, the origin or origins of FRBs have been actively studied by many astronomers. In 2020, an FRB event was discovered during a bursting activity of a Galactic magnetar SGR 1935+2154. The magnetars are a subgroup of neutron stars with the strongest magnetic field strength of $\sim 10^{11}$ T on its stellar surface. They sometimes exhibit sporadic X-ray and soft gamma-ray burst emission releasing stored magnetic energy. The recently discovered FRB association to SGR 1935+2154 indicates that magnetars are one promising candidate for FRBs' origin. At this talk, I will review the story of rapidly developing fields of the FRBs and observational implications from a diversity of neutron stars, especially magnetars, the strongest magnets of our Universe.

