

Proposal Abstract:

Pulsars are highly magnetized, rotating neutron stars that emit beams of electromagnetic radiation from their magnetic poles. These beams can be detected, across a wide range of frequencies, as regular pulses of radio waves, making pulsars valuable tools for studying astrophysics and testing fundamental physics. The different emitting frequencies of pulsars are thought to be related to the location of the emission region on the neutron star's surface. Dual-frequency observations of pulsars can offer insights into the pulsar emission mechanism, interstellar medium, and the properties of the neutron star. In this proposal, we aim to carry out dual-frequency observations of six pulsars, B0329+54, B0531+21, B0950+08, B1133+16, B1508+55, and B1919+21, using the FAST and LOFAR telescopes. The observation will be carried out at two frequency bands: VHF band (10-240 MHz) and L-band (1000-1400 MHz). The dual-frequency observation will allow us to study the pulsars' emission properties, the interstellar medium, and the pulsar timing noise.