

Collapsing axion star as source of repeating fast radio bursts

Thursday, March 26, 2020 10:30 AM (30 minutes)

Reiterating publicly available data, we discover remarkable features in the frequency spectra of repeating Fast Radio Burst 121102. First, we find that the spectra include regular patterns of equidistant peaks which cannot be explained by scintillation, as the interpeak distance 82 MHz does not depend on frequency. These peaks can be attributed to diffractive gravitational lensing. They appear on top of erratic oscillations at scales $100 \div 500$ MHz due to strong interstellar scintillations and a huge peak at 7 GHz that can be explained by propagation through a plasma lens. Second, separating the propagation effects, we extract intrinsic properties of the burst progenitor which is likely to have narrow spectrum of GHz width. The central frequency of this spectrum changes from burst to burst with a hint for 100 s periodicity.

Author: PANIN, Alexander (INR RAS)

Presenter: PANIN, Alexander (INR RAS)

Session Classification: Radio astronomy