

PID:PT2022_0147

Abstract:

We propose to map the HI spatial distribution of a nearby SB0 galaxy NGC 2685 using the FAST On-The-Fly (OTF) mode with a field of view of $1.5^\circ \times 1.5^\circ$. NGC 2685 shows ring and helix structures in both stellar and HI components. The VLA observation shows an inner polar ring, which is offset from the outer disk by 70° . However, the HI morphology and kinematics from WSRT can be well explained by a coherent, extremely centrally warped disk from kinematic modeling. However, the interferometric observations may miss a significant fraction of diffuse HI emission. Therefore, the existence of polar ring is unclear. Moreover, the high gas fraction (8% higher than normal S0) and peculiar morphology suggests gas accretion, which should be further manifested by the direct spatial connection of HI distribution between NGC 2685 and its companions. The high sensitivity and small beam size of FAST are crucial to detect faint and extended HI fluxes of NGC 2685 and its environment. A combination of FAST and WSRT data will reveal if it is a polar ring or warped features, and constrain the formation mechanism of the peculiar structures.