

Milky Way's tearing up the oldest celestial bodies: Revealed by three decades' watching by FAST and Arecibo



Over three decades

- achieved, the first time, phase-connected timing solutions for all seven known pulsars

Across 16 orders of magnitude

- identified counterparts for pulsars in the optical and X-ray band.

Long-term timing & N-body simulation

- demonstrated the host galaxy can tear up the oldest celestial body within.

The birth of M5

~ 13 Gyr ago

M5 fell into the Milky Way

~ 9 Gyr ago

Arecibo

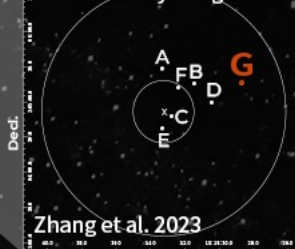
Observation
1989-2011

FAST

Observation
2020-2022

M5 in the constellation Serpens

Chandra X-ray image of M5



Zhang et al. 2023