

A06r **Resolving the shadow of Sagittarius A***

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Recently, great progress has been made towards understanding the extremely compact radio source Sagittarius A* (Sgr A*) at the Galactic center, thanks to the rapid development of astronomical instruments and techniques. Sgr A* is the closest supermassive black hole candidate with the largest angular size (about 10 micro arcsec of its Schwarzschild radius).

In my talk, I'll first review the observational investigation on the intrinsic structure of Sgr A* with the high-resolution Very Long Baseline Interferometry (VLBI) technique. The numerical simulation of the black hole shadow image and the corresponding visibility analysis will be presented to demonstrate that we are on the verge of resolving the shadow of Sgr A* with the future sub-millimeter VLBI experiments.

I'll further report on the detections of the intraday variations (IDVs) of the 3-mm flux density of Sgr A* from our monitoring observations with the Australia Telescope Compact Array (ATCA). Discussions on the IDV events and a structural variation seen at 7-mm will be presented.