

## Pulsars in compact orbits around Sgr A\*

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The black hole in the center of the Milky Way, Sgr A\* is an ideal candidate for testing general relativity in the strong-field regime. The tracking of young stars at very close orbits has already led to a direct measurement of its mass. The discovery and subsequent timing of a single radio pulsar in orbit around Sgr A\* will also allow for a direct measurement of the black hole's spin and quadrupole moment. The presence of a cluster of young, massive stars in orbit around Sgr A\* makes it highly likely that a large population of as-yet undetected pulsars exist in this region of the galaxy. Moreover, the detection of excess gamma-rays in this region of the galaxy by the Fermi LAT instrument provides further hints that a population of millisecond pulsars maybe the culprit in the production of gamma-rays. The difficulty, however, in detecting these pulsars lies in the fact that interstellar scattering heavily disperses and broadens the emission from each pulsar. This effect is known to be severe at standard pulsar search frequencies. We have begun a dedicated survey for millisecond pulsars in the Galactic Center region of the Galaxy, specifically designed to overcome the deleterious effects of scatter broadening by using a state-of-the-art pulsar machine on the largest radio telescope in the Southern Hemisphere. I will describe the details of the survey, will provide early results from our recent observations, and provide an overview of the latest results from studies of the known galactic center magnetar.