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**Title:** Constraining a scalar field cloud near Sgr A\*.

**Abstract:** GRAVITY measurements allow us to know with extremely high precision the position in the sky of a large number of stars, namely the S-stars, orbiting very close to the supermassive black hole at the Galactic Center. These data can be used to test the presence of dark matter's distributions in a region of the Universe where gravity is very strong. To this aim, I will show how to exploit the astrometric data collected for S2-star to constrain the possible presence of a scalar field cloud around Sgr A\*. The talk will be devoted to explain how to get the equations of motion in a setup given by a central black hole and a toroidal scalar field distribution, how to get the best estimates for the parameters describing the cloud using a Markov Chain Monte Carlo method and to show some preliminary results.