

A. Foschi: Constraining bosonic clouds at the Galactic Center (WP4)

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The motion of S2, one of the stars closest to the Galactic Center, has been measured accurately and used to study the compact object at the centre of the Milky Way. It is commonly accepted that this object is a supermassive black hole but the nature of its environment is open to discussion. In this talk I'm going to show how the motion of S2 can be used to investigate the possibility that dark matter in the form of an ultralight scalar field "cloud" clusters around SgrA*. I will explain the theoretical setup, the tools used to fit the available data and finally the results and the constraints we can get from the Galactic Center. In the final part, I'm also going to extend the analysis to vector clouds and show some preliminary results