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Discovering the Millisecond Pulsar population responsible for the Gamma-Ray excess in the Sagittarius Dwarf Spheroidal galaxy with Radio Telescopes.

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Observations of the Sagittarius dwarf spheroidal galaxy with the Fermi Gamma-Ray Space Telescope have revealed an excess of extended emission likely originated by an emerging population of millisecond pulsars in the core of this dwarf. In this talk, I will discuss the sensitivity of current and upcoming radio telescopes to this putative population of millisecond pulsars. I will show that the Square Kilometer Array (SKA) will be the most sensitive instrument for detecting these objects. With about 20 minutes of exposure per pointing, the SKA will be capable of identifying approximately ~ 20 millisecond pulsars in the Sgr dSph. This would confirm the hypothesis that the Sgr dSph galaxy excess is due to an unresolved population of millisecond pulsars and would decisively exclude a dark matter explanation for the excess.

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