

# Testing the stability of heavy dark matter with up-coming radio neutrino telescopes

Marco Chianese,<sup>1,\*</sup> Damiano F.G. Fiorillo,<sup>1,2,†</sup> **Rasmi Hajjar (speaker),<sup>3,‡</sup>**  
Gennaro Miele,<sup>1,2,3,§</sup> Stefano Morisi,<sup>1,2,¶</sup> and Ninetta Saviano<sup>2,3,\*\*</sup>

<sup>1</sup>*Dipartimento di Fisica "Ettore Pancini", Università degli studi di Napoli  
"Federico II", Complesso Univ. Monte S. Angelo, I-80126 Napoli, Italy*

<sup>2</sup>*INFN - Sezione di Napoli, Complesso Univ. Monte S. Angelo, I-80126 Napoli, Italy*

<sup>3</sup>*Scuola Superiore Meridionale, Università degli studi di Napoli "Federico II", Largo San Marcellino 10, 80138 Napoli, Italy*

## WHAT IS THIS CONTRIBUTION ABOUT?

The contribution is about indirect Dark Matter detection, we place bounds on Dark Matter properties (in this case its lifetime) from the neutrino fluxes that we expect coming from its decay.

## WHY IS IT RELEVANT / INTERESTING?

It is relevant because the first radio neutrino telescopes will be built during the next decade and we forecast their performance on the indirect Dark Matter search sector.

## WHAT HAVE WE DONE?

We have forecasted the lifetime limits that the future radio neutrino telescopes will be able to place on the decaying Dark Matter scenario in the mass range  $m_{\text{DM}} = [10^7 - 10^{15}]$  GeV.

## WHAT IS THE RESULT?

We obtain that the future radio neutrino telescopes will be able to open a new parameter space on some of the decay channels and will provide complementary constraints to the current existing ones.

---

\* [marco.chianese@unina.it](mailto:marco.chianese@unina.it)

† [dfgfiorenzo@na.infn.it](mailto:dfgfiorenzo@na.infn.it)

‡ [rasmienrique.hajjar@unina.it](mailto:rasmienrique.hajjar@unina.it)

§ [miele@na.infn.it](mailto:miele@na.infn.it)

¶ [smorisi@na.infn.it](mailto:smorisi@na.infn.it)

\*\* [nsaviano@na.infn.it](mailto:nsaviano@na.infn.it)