

Limits on WIMP Annihilation from the M87 EHT Observations

Sunday, 26 September 2021 16:00 (30)

The fast developments of radio astronomy open a new window to explore the properties of dark matter. In this talk, I will introduce our recent work on this topic, constraining WIMP annihilation from the Event Horizon Telescope observations of the M87 supermassive black hole. Assuming the existence of a spiky dark matter density profile, we derive the new limits on the WIMP annihilation cross section. Our results show that the annihilation cross section with several orders of magnitude below the thermal freeze-out production can be excluded by the EHT observations under the density spike assumption. Future EHT observations may provide a unique opportunity to test the interplay between dark matter and the supermassive black hole.

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