

# Searching for dark matter and pseudoscalar mediators at the intensity frontier

*Thursday, 17 December 2015 16:00 (1h 30m)*

I will consider scenarios where dark matter interacts with Standard Model states via the exchange of a light pseudoscalar. While there are typically only weak constraints from direct dark matter searches, the pseudoscalar mediator will induce new interactions between Standard Model particles, providing a promising alternative way to test these models. I will present the constraints arising from rare meson decays and fixed target experiments, with a special focus on how to reliably calculate the production of axion-like particles in proton beam fixed-target experiments such as NA62 or SHiP. The resulting bounds are highly complementary to the information inferred from the dark matter relic density and the constraints from primordial nucleosynthesis. These findings have important implications for the dark matter self-interaction cross section and the prospects of probing dark matter coupled to a light pseudoscalar with direct or indirect detection experiments.

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