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Probing ultralight dark matter in the wilderness

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The interplay between wave-like dark matter and Earth ' s conductive properties generates a global monochromatic magnetic field. Simple experimental setups, such as those pioneered by the SNIPE Hunt collaboration, have already demonstrated the feasibility of probing axion-like particles and dark photons. Beyond these candidates, this approach can also be extended to ultralight dark matter carrying a tiny electric charge. In this talk, I will discuss how such magnetic field signals arise for all three dark matter scenarios and present the current experimental status, along with future detection prospects.

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