

# Plasma Dark matter direct detection

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Dark matter might exist in the Milky Way as a dark plasma. Such dark matter arises in models where dark matter originates from a hidden sector featuring a massless ‘dark photon’, including mirror dark matter. In such a scenario, the implications for direct detection experiments are very different from the more commonly studied case of WIMP dark matter. In particular electron recoils can be the dominant process leading to keV energy depositions in detectors. In addition, large annual modulation and sidereal daily modulation signals become characteristic features of such dark matter. The possibility that plasma dark matter might be the origin of the DAMA annual modulation signal is also discussed, along with the expectations of what might be expected in the near future from other experiments. This work is based on recent work including: arXiv:1512.06471 (in collaboration with J. Clarke), arXiv:1412.0762 (in collaboration with S. Vagnozzi), arXiv:1407.4213.

## Summary

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