

## Axion production in unstable magnetized plasmas

Axions, the hypothetical particles restoring the charge-parity symmetry in the strong sector of the Standard Model, and one of the most prone candidates for dark matter, are well-known to interact with plasmas. Recently, we have shown that if the plasma dynamically responds to the presence of axions, then a new quasi-particle (the axion plasmon-polariton) can be formed, being at the basis of a new generation of plasma-based detection techniques. In this work, we exploit the axion-plasmon hybridization to actively produce axions in streaming magnetized plasmas. We show that, if we make the plasma unstable via the injection of an energetic electron beam (beam-plasma instability), an appreciable production rate of few axions per minute can be achieved. The produced axions can then be detected by Primakoff decay into photons

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