

Searching for Axions and new concepts in fundamental physics with Machine Learning

Thursday, 7 November 2019 16:05 (30 minutes)

In this talk, I will review how ultralight axion-like particles can be constrained using X-ray observations of bright localized sources (AGNs, Quasars) in and behind galaxy clusters. To find axion-like particles in these settings corresponds to finding their characteristic pattern (quasi-sinusoidal oscillations) in noisy data. Using ML-techniques we are able to improve the search sensitivity for these particles and are able to set stronger bounds compared to previous methods. In the second part of the talk, I shall highlight avenues where ML can be used to accelerate our understanding of fundamental physics (string theory) and potentially vice versa.

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Session Classification: Invited talks - Physics and Astronomy 1-2