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Searching for axions in the gamma-ray sky

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Extreme astrophysical environments may produce axion-like particles (ALPs), whose interactions could leave observable imprints on astronomical spectra. If they exist, ALPs may be a viable candidate for dark matter. In this project, we search for axion-induced spectral features in gamma-ray observations of active galactic nuclei (AGNs) that are aligned with galaxy clusters along the line of sight. We assess the impact of AGN variability on spectral signatures and perform a stacked analysis of 29 AGN-cluster pairs. Our goal is to place competitive constraints on ALP parameters. While our results are still preliminary, they appear promising.

Field of study

Quantum Physics

Supervisor

Oleg Ruchayskiy

Author: STOUGAARD KLAUSEN, Rikke (Niels Bohr Institute, University of Copenhagen)

Session Classification: Poster session: Enjoy the posters!