



第94回2024年度第10回

広島大学極限宇宙研究拠点

Hiroshima University CORE-U Seminar

Speaker: Dr. Federico Urban

(Institute of Physics, Czech Academy of Sciences,
Senior Researcher)

Title:

New techniques for ultra-light dark matter searches

Date : 15th.Oct.2024 (Tue) (14:00-15:30)

2024年10月15日(火) (14:00-15:30)

Place: 広島大学理学部E203大会議室 (ハイブリッド)

Room E203, Faculty of Science, Hiroshima University

Abstract: See the back side of this poster

Language: English

ZOOM Link (limited within 100)

<https://us04web.zoom.us/j/76938183260?pwd=HttPsZfdv4pWGTSI6HivLSJuj7UPKM.1>

ミーティング ID: 769 3818 3260

パスコード: 8WuMmV

共同セミナーとしての認定は対面のみとします。出欠はセミナー終了時にE203で確認します。The participation of collaboration seminar will be verified after the talk at the room E203. Please bring the seat of the paper for the signature.

世話人 連絡先 広島大学宇宙物理学研究室 西澤 篤志

**Contact Atsushi Nishizawa Astrophysics Group, Hiroshima University
atnishi_at_hiroshima-u.ac.jp (_at_は@に変更ください: change _at_ to @)**

広島大学極限宇宙研究拠点 (Core-U) セミナー 世話人

山口頼人、水野恒史、両角卓也

Organizers : Yorito Yamaguchi, Tsunefumi Mizuno ,Takuya Morozumi

Abstract:

- Ultra-light dark matter field oscillations in the late Universe imprint distinctive marks on interferometers and pulsar-timing data. These depend on the details of the dark matter model, for instance its spin and interactions with the Standard Model. In this talk I will review new techniques and methods to extract a putative ultra-light dark matter signal from gravitational wave detectors and pulsar-timing data. In particular, I will focus on (a) a bayesian method for populations of binary pulsars; (b) a machine-learning-based technique to extract the dark-matter signal from binary pulsar orbital perturbations; (c) the signatures of ultra-light dark matter on gravitational wave interferometer data. If time allows, I will also review recent results on simulations of halo formation with ultra-light dark matter of spin 0, 1 and 2.