



2026年度第4回

広島大学極限宇宙研究拠点セミナー

Hiroshima University CORE-U Seminar

Speaker: Professor Sin Kyu Kang
Seoul National University of Science and
Technology (Seoul Tech)

Title: Searching for Dark Photon Tridents
Through Primordial Black Hole Signatures

Abstract: See back side of this poster

Date : 2026年8月7日(金) (13:00-14:30)

7th Aug./2026 (Fri.) (13:00-14:30)

Place: 広島大学理学部E104教室 (ハイブリッド)

Room E104, Faculty of Science, Hiroshima University

Language English

Teams Link: See back side of this poster

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E104で確認します。

Certification for the joint seminar is limited to in-person attendance only.

Attendance will be confirmed at the room E104 after the seminar.

Please bring the seat of the paper for the signature.

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広島大学極限宇宙研究拠点 (Core-U) セミナー 世話人

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Organizers : Yorito Yamaguchi, Tsunefumi Mizuno, Takuya Morozumi

Abstract

The detection of gamma-ray signals from primordial black holes (PBHs) could provide compelling evidence for their role as a dark matter candidate, particularly through the observation of their Hawking radiation. Future gamma-ray observatories, such as e-ASTROGAM, and the next-generation telescopes, are poised to explore this possibility by measuring both Standard Model (SM) and beyond-the-SM particle emissions. A particularly promising avenue involves production of dark photons by PBHs, which is a hypothetical particle that decays into photons. In this work, we investigate the trident decay of dark photons with mass $m_{A'} \leq 1$ MeV focusing on their primary emission from asteroid-mass PBHs. We assume that the dark photons produced via Hawking radiation decay into photons well before reaching Earth, thereby enhancing the detectable gamma-ray flux. The energy spectrum of the photons decaying from the dark photons is distinct from that of direct Hawking-radiated photons due to higher degree of freedom, leading to observable modifications in the gamma-ray signal.

Teams Link

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