

# HEP2023 - 40th Conference on Recent Developments in High Energy Physics and Cosmology, Ioannina, Greece



Contribution ID: 90

Type: **not specified**

## Gravitational focusing effects on streaming dark matter as a new detection concept

*Friday 7 April 2023 17:00 (20 minutes)*

Cosmological simulations for cold dark matter (DM) suggest that a large number of streams might exist in our Galaxy. The current work includes gravitational focusing (GF) effects on streaming DM constituents by the Sun and the Earth as they approach the Earth bound detectors. For streaming DM, the GF gives rise to spatiotemporal flux enhancements of orders of magnitude above the nominal DM density. Interestingly, due to Earth's rotation the flux enhancements appear as transient signals lasting about 10 seconds repeating daily for days or weeks. This work presents a novel opportunity for DM signal detection and identification. The present simulation can be applied to any kind of invisible matter entering the solar system.

**Presenters:** KRYEMADHI, Abaz (Messiah University, USA); ZIOUTAS, Konstantin (University of Patras (GR))

**Session Classification:** Parallel (Experiment)