

Planetary relationships as the new signature in astroparticle physics

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The discovery of dark Matter (DM) by ZWICKY came from unexpected cosmological observations. Similarly, the last ~160 years a number of unexpected energetic observations could be the manifestation of the dark Universe. We refer to this class of particle candidates as “invisible” to distinguish them from the already excluded parameter phase space of WIMPs and axions. In this work we stress a simple feature as the common signature of such observations within the solar system. Namely, the widely discussed dark sector constituents with velocity of $\sim 1\% c$ (c =velocity of light). As pointed out since 20 years, streams of constituents with such velocities can be gravitationally focused or deflected by any solar system body to others. The aforementioned energetic observations include the unpredictable flaring Sun, its irradiance, its size variation, its elemental composition, etc, but also terrestrial phenomena including the dynamic atmosphere and other highly crossdisciplinary observations like the not randomly appearing Earthquakes. All observations follow otherwise unexpected planetary relationships. More results may come out until this conference following more out-of-the-box thinking including exo-solar planetary systems. To conclude, a planetary relationship is a key signature pointing on its own at exo-solar origin. Also for Earthquakes, the only viable explanation is thanks to planetary gravitational focusing of streaming invisible matter, which is tentatively identified with constituents from the dark Universe, interacting with large cross section with ordinary matter. Implications in (ongoing) DM experiments will be discussed. The mostly inspiring particle constituents fitting-in a number of observations are AntiQuarkNuggets, magnetic monopoles and dark photons. Though, more emerging candidates like the pearls (see work by Holger Nielsen) are encouraged to investigate whether they fit-in, and, how to identify their possible involvement by triggering energetic phenomena; so far, the solar radius variation is the most energetic observation.

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