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Planetary relationship as a key signature from the dark sector

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Abstract

Various solar and terrestrial observables show a planetary dependency, even though there is no remote planetary force beyond the extremely feeble tidal force. The common viable explanation of the unexpected observations is planetary gravitational lensing of some generic slow stream(s) from the dark sector that can be focused within the solar system, thus pretending to be a not extant remote force. For example, the synod Jupiter-Earth-Venus strikingly coincides with the 11-year solar cycle. At the same time, Dark Matter (DM) remains elusive, while most of the investigations assume an isotropic DM distribution. Initially, the suggestion was put forward that planetary gravitational lensing of some generic invisible stream(s) results in spatiotemporally strong flux enhancements at any position of the solar system. Thus, even a tiny basal DM interaction with normal matter can occasionally result in an energy deposit far above the currently assumed thresholds. DM streams and clusters have also been independently introduced by cosmological reasoning. However, to explain the almost ubiquitous 11-year solar rhythm, including biomedicine, some generic DM stream(s) were assumed. Therefore, direct DM searches could also profit from spatiotemporally peaking time intervals appearing in other observations, which might be correlated with a direct DM search. Thus, planetary signatures have the potential to lead to a direct DM discovery, even with existing data. Among many theoretically invented particle candidates, favourite and inspiring DM constituents are given. In conclusion, a planetary dependency requires streaming matter from the dark Universe, since all objects of the solar system are effective gravitational lenses for typical DM velocities around 300 km/s. Experiments being sensitive to streams and transient events are advocated following this work.

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1. Introduction

The constituents of the dark sector are assumed to propagate with velocities around 0.001 c (c= speed of light). For such velocities, not only the Sun but also the planets can act as gravitational lenses, with their focal region lying within the solar system. Even the Moon can focus incident invisible streams toward the Earth with velocities up to about 400 km/s, thus covering a large part of the velocity phase space of the dark sector components [1]. Interestingly, the inner earth mass distribution allows a self-gravitational focus effect towards the opposite side of the Earth, as seen from the incident stream [2][1]. The estimated amplification can reach values up to about 10^9 [2][3], while the focal position works as a velocity filter.

We recall that streams [4] and clusters [5][6] from the dark sector have been derived following cosmological considerations. Interestingly, the striking coincidence between the 11-year synod of Jupiter-Earth-Venus and the solar cycle was suggestive of the existence of a planetary dependency [7]. However, the question within known physics remains “how can it be?”, since the only known remote planetary force is the gravitational tidal force, which is extremely feeble to be behind the temporally changing solar observables [8]. On the other hand, DM streams pointing towards the Sun can strongly enhance their flux towards the Sun if a planet enters the stream towards the Sun (or any other solar system object, e.g.,

Earth). Then, the increased dark flux can surpass threshold effects, mimicking a not extant planetary force. It is worth stressing here that this scenario is a viable explanation for several solar and terrestrial observables, which have been investigated so far (see [8] and refs therein). Of note, such kind of simulated planetary dependencies led to the assumption that some generic invisible streams must exist in our vicinity, which would explain the otherwise unexpected effects.

Following several, otherwise unexpected, planetary-dependent solar and terrestrial observations, the global definition of DM as being some kind of material that does not emit, absorb, or reflect light is misleading. Ultimately, the ongoing searches for direct DM detection are based on some interaction with normal matter from which the detectors are made.

2. Relevant observations

Ref. [8] presents several observations made within the last two decades. In contrast to known science, they show a variety of striking planetary dependencies. In this context, it is worth stressing the work by Prezeau [2], Sofue [1], and those in refs [9][10][11][12][13][14]. Furthermore, we stress that similar results have been obtained in the field of biomedicine [15][16][17][18], following its societal relevance. In [18], it is shown that normal biomedical reactions (i.e., not malignant) associated with conception rates also show diverse planetary relationships, including the quasi-ubiquitous 11-year solar rhythm [7]. We recall that the solar cycle coincides with the planetary synod of Jupiter-Earth-Venus. However, so far, no viable mechanism has been presented within known physics that could provide an explanation. For comparison, the suggested planetary gravitational focusing of generic stream(s) from the dark sector has been inspiring. They became the viable common scenario for all the observations to date, be solar or terrestrial ones, including the results from biomedicine [15][16][17][18].

Planetary gravitational lensing of DM streams with typical velocities around 250 km/s has been suggested to explain the most prominent solar periodicity of 11 years [7]. Using the daily number of sunspots since 1900, Fig. 1 shows a striking dependency during the synod Earth-Mars of 780 days. In this distribution, the daily values of 54 consecutive Mars-Earth synods are summed up. The statistical significance of the various peaks observed is (far) above 5σ. The daily sunspot number variation during 54 consecutive synods is remarkable. Thus, the result given in Fig. 1 shows a combined double planetary dependence of the solar activity, namely that of Earth and Mars. This distribution is not a random one, as one would expect if no planetary dependence was at work, but it shows a rich substructure, which deserves to be scrutinized. Since the registered daily sunspot number covers a long time period (from 1900 to 2016), it would be interesting to recover the dynamical behavior of all peaks. Noticeably, the Lomb-Scargle periodogram does not provide a peak at 780 days (not shown here), probably because of the rich substructure of the spectral shape shown in Fig. 1. Similar observations from several solar and terrestrial measurements are given in ref. [14].

The question arises whether data from the thousands of already identified exo-solar planetary systems might also show some exo-planetary relationship in support of the present proposal. Even more, once such a result is found, it has the potential to strengthen the planetary link to DM. It is not far-fetched that establishing a correlation with some relatively near exo-solar system might serve as a novel signature, allowing us to also identify the spatial streaming DM distribution in our

galactic vicinity.

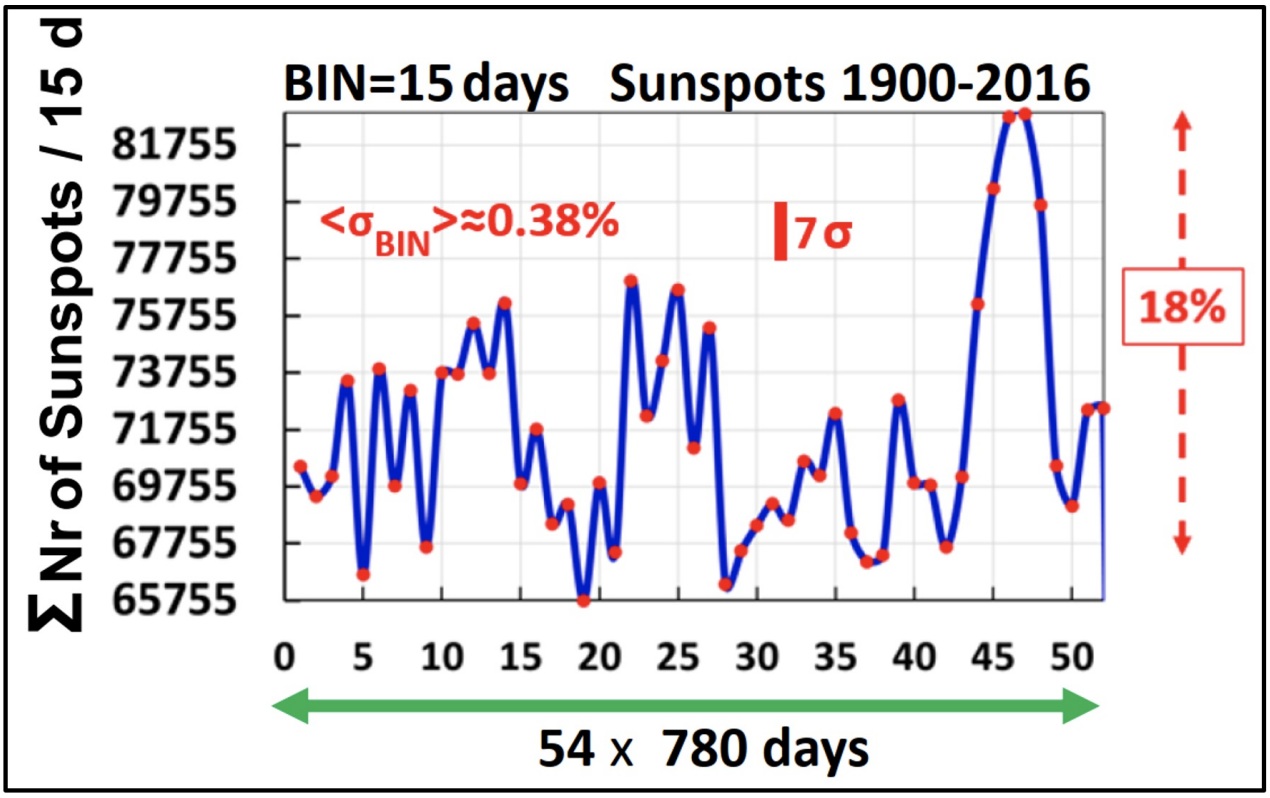

Figure 1. Summing up 54 consecutive Mars-Earth synods of 780 days. The statistical significance of the various peaks is (far) above 5σ. The 780-day periodicity is not recovered by the Lomb-Scargle periodogram (not shown here).

3. Discussion – Conclusion

DM streams [4] and clusters [5][6] have been invented independently by cosmologists. In the context of this work, some generic DM stream(s) have been assumed to explain the almost ubiquitous 11-year rhythm, while this periodicity coincides with the synod Jupiter-Earth-Venus. Many long series of measured solar and terrestrial observables have already been analysed, which point to planetary gravitational lensing effects. Initially, the suggestion was put forward [7] that, due to planetary gravitational lensing, some generic invisible stream(s) result in spatiotemporally strong flux enhancements at the position of the Sun (or also elsewhere in the solar system). It is within this picture that even a tiny basal interaction with normal matter can occasionally result in a total energy deposit surpassing the threshold effect. On the other hand, the basal interaction between DM and normal matter occurring mainly outside gravitational planetary focusing transients so far evades direct detection. Therefore, DM searches would focus on spatiotemporally relevant peaking time intervals, which also appear in other solar and terrestrial observations. Thus, planetary signatures have the potential to unravel a direct DM discovery, and this is even by re-analyzing existing data.

Finally, the question arises, “What is the nature of the underlying constituents of the dark Universe”. For example, in Refs [19][20][21][22] we mention only three different DM models, which are indicative of the large variety of suggested ideas for the dark sector constituents. While we do not know what will be at the end of the ultimate DM model(s), the invented

Anti Quark Nuggets (AQNs) [21][22] fit in as a solution when considering all the unexpected planetary-dependent observations, be it solar or terrestrial. For example, the step-like temperature inversion at a solar height of only ~2000 km has not been explained with known physics. The AQNs [21][22] fit in astonishingly well with the observation. Of note, the widely considered dark photons are also of potential interest, since their kinetic mixing with real photons is very attractive, while it is being considered as a candidate for DM.

Furthermore, considering the striking planetary relations of the solar activity (i.e., the 11-year sunspots cycle), magnetic monopoles could be the cause of the solar magnetic variation. The otherwise unexpected observation of the 780-day Earth-Mars synod (Fig.1) strengthens the reasoning in favour of the involvement of magnetic monopoles. Along this reasoning fit the magnetic bright points (MBPs) (see ref. [8] and Fig.1b therein). The MBPs have a much smaller size than sunspots, and they remarkably also show planetary dependency [8].

In conclusion, a planetary dependency requires streaming matter from the dark Universe since all objects of the solar system are effective gravitational lenses for stream velocities around 300 km/s. Given the fact that DM has not been directly detected despite large worldwide efforts, experiments being sensitive to streams and transient events may have a better perspective to directly discover DM. Thus, planetary relationships could provide the key signal to eventually unravel DM. The mysterious dynamic solar behaviour is inspiring, including the puzzling coronal elemental composition relative to the photospheric one (see ref. [8] and Fig. 1a therein, and also ref [14]); the observed planetary dependence makes it even more puzzling. Therefore, solar and exo-solar observations alike are promising to eventually shed “light” on the dark Universe.

Data availability

The data supporting the findings of this study are available from the corresponding author upon reasonable request.

Competing interests

The authors declare no competing interests.

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