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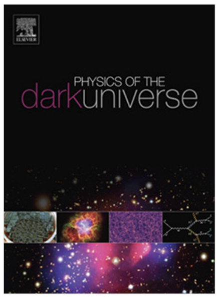

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The Sun and its Planets as detectors for invisible matter

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Abstract:

Gravitational lensing of invisible streaming matter towards the Sun with speeds around 10^{-4} to 10^{-3}c could be the explanation of the puzzling solar flares and the unexplained solar emission in the EUV. Assuming that this invisible massive matter has some form of interaction with normal matter and that preferred directions exist in its flow, then one would expect a more pronounced solar activity at certain planetary heliocentric longitudes. This is best demonstrated in the case of the Earth and the two inner planets, considering their relatively short revolution time (365, 225 and 88 days) in comparison to a solar cycle of about 11 years. We have analyzed the solar flares as well as the EUV emission in the periods 1976-2015 and 1999-2015, respectively. The results derived from each data set mutually exclude systematics as the cause of the observed planetary correlations. We observe statistically significant signals when one or more planets have heliocentric longitudes mainly between 230º and 300º. We also analyzed daily data of the global ionization degree of the dynamic Earth atmosphere taken in the period 1995-2012. Again here, we observe a correlation between the total atmospheric electron content (TEC) and the orbital position of the inner three planets. Remarkably, the strongest correlation appears with the phase of the Moon. The broad velocity spectrum of the assumed constituents makes it difficult at this stage to identify its source(s) in space. More refined analyses might in the future increase the precision in the determination of the stream(s) direction and possibly allow to infer some properties of its constituents. Presently, no firmly established model of massive streaming particles exists, although in the literature there are abundant examples of hypotheses. Among them, the anti-quark nuggets model for dark matter seems the better suited to explain our observations and deserves further study.