Consequence of Distance From the Metric Perturbation Source on Tract Timing

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August 7, 2024

Abstract

In this note, the authors present preliminary results revealing that in some instances of neural organs at certain distances from certain parent stars, the organ would be sensitive to the seasons directly, without tactile or visual information. This is based on the relation between metric perturbations and tract timing information.

In [1, 2] we provided a program to simulate 3D geometric tracts interacting with gravitational radiation. In this work we edit that program as to provide the curves (see Figure 1) which show how distance r from a pulsating gravitational wave source star affects the timing of initiation of action potentials on $N = 4$ axons in an axon tract. The variation with r is clearly visible. These changes were made on the basis of a paper of Thorne [3].

The differential is about 0.2 milliseconds on axon number 3, the change being accrued by traversing a distance of 20e9 meters or 20 million kilometers. The aphelion displacement between Earth and the Sun is 152.1 million km and the perihelion displacement between Earth and the Sun is 147.1 million km, giving a change of about 5 million kilometers. So plausibly, if the sun was pulsating and emitting g-waves and brains were located on say Jupiter or Pluto (which might have a larger difference between their aphelion and perihelion), then our study would indicate that those brains would be sensitive to that planet's orbital motion around the corresponding star, the Sun. Without experiencing seasons through vision or tactile sensations such as temperature, the brain in those settings would process information differently in different seasons.

References

[1] Aman Chawla, Salvatore Morgera, and Arthur Snider. On axon interaction and its role in neurological networks. *IEEE/ACM Transactions on Computational Biology and Bioinformatics*, 2019.

[2] Aman Chawla, Salvatore D. Morgera, and Arthur D. Snider. Fields, geometry, and their impact on axon interaction. *Journal of Applied Mathematics and Physics*, 9(4):751–778, 2021.

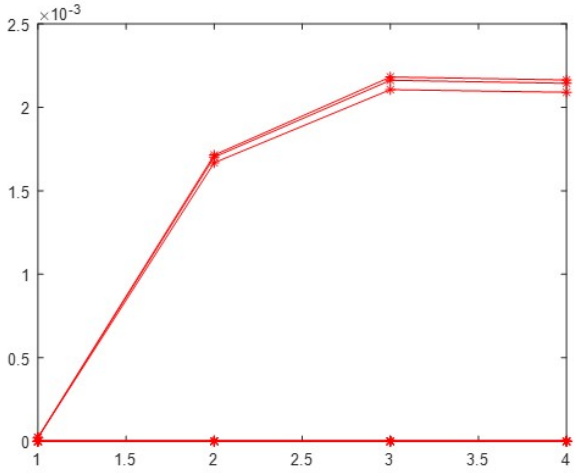

Figure 1: The horizontal axis is axon number. The vertical axis is action potential initiation time on the axon. The distance from the star (radial) is in the set 1e9*[10:10:30] and this constitutes the would-be legend. $Msolar$ is set to 1000 kg. This is because larger numbers yield singular matrices during the computation. The gravitational wave frequency is fixed at 2e-3 Hz.

[3] William L Burke and Kip S Thorne. Gravitational radiation damping. In *Relativity: Proceedings of the Relativity Conference in the Midwest, held at Cincinnati, Ohio, June 2–6, 1969*, pages 209–228. Springer, 1970.