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## Simulation of the effect of the brain “inner GPS” for its possible experimental verification

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Recent Nobel Prize discovery of the “internal GPS” in the mice brain by John O’Keefe with May-Britt Moser and Edvard R. I. Moser does not have an immediate physical explanation. What has been observed is that some neuron of the brain fire when tested animal moves over particular areas. In this work we provide an interpretation of this phenomenon based on a model of the brain suggested by S. Berkovich. For this purpose, we have arranged computer simulations of a “mouse” walk of some pattern with rate of recording determined by the time “mouse” spent in a given position. Then some cutoff threshold was chosen and according to the considered brain model the signal can be detected only above this threshold. The simulation outcomes resemble the obtained experimental results. The correctness of the suggested mechanism can be verified by studying various forced stochastic and/or deterministic movements of a real mouse. The developed simulation model can realize corresponding movements of artificial “mouse” for comparison. The suggested mechanism if real essentially incorporates informational influences in biochemical interactions of macromolecules. Applications of this new mechanism may have far reaching consequences for different aspects of medical treatments; particularly; it elucidates the mysterious power of homeopathy.

### Biography

Chen Shen received a BS degree in Software Engineering in 2011 from Huazhong University of Science and Technology, and an MS degree in Computer Science in 2013 from the George Washington University. He prepared a master thesis of “Generalized Fibonacci Code” under guidance of Professor Berkovich. In 2013 fall, he joined a startup as an image processing engineer in Tennessee; at the same time, he did research on “Searching Large Volume of Data with Pigeon-Hole Principle” with Professor Berkovich and his student. Now, he is a computer science department freshman in the PhD program under advice of Professor Choi.

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