



POST-DOCTORAL POSITION IN COMPUTATIONAL NEUROSCIENCE

Research Topic: Mathematical modeling of the electrical activity of cold sensitive nerve endings.

Post-Doctoral position available at the Computational Neuroscience lab, Centro Interdisciplinario de Neurociencia de Valparaíso. Dr. Patricio Orio

Mammalian cold sensitive nerve endings generate a variety of rhythmic firing patterns (tonic or bursting, regular or irregular) that are supposed to encode skin temperature. These firing patterns are the result of a collection of ion channels and the different effects that temperature has on them. A misbalance in the function or expression of these channels leads to several neuropathies that are not yet easily explained. In order to understand the dynamics of thermosensation in physiological and pathological conditions, we will fit and analyze conductance-based models of cold receptors. We will employ parameter optimization algorithms and tools for dynamical system analysis. This work will not only shed light about the role of different ion conductances in cold thermoreceptors, but also on the robustness of an oscillatory system after dramatic changes of parameters induced by temperature.

Applicants must be interested in working in an interdisciplinary work environment, as well as possess mathematical knowledge in dynamical systems, neural excitability and/or analysis of oscillatory phenomena. Programming skills are needed and a medium knowledge of Python is desirable. Possible applicant's profiles include:

- PhD in physics or applied mathematics with interest on biological phenomena.
- PhD in neuroscience or related areas with advanced mathematical skills.

Applicants please contact Dr. Patricio Orio, patricio.orio@uv.cl or Dr. Rodolfo Madrid, rodolfo.madrid@usach.cl for more information.

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