A STOCHASTIC MODEL OF GATING PROCESS ON CALCIUM ION CHANNEL

ROLANDO REBOLLEDO AND RODRIGO COFRÉ

ABSTRACT. The mathematical modelling of ionic transportation through cell membranes has had an important development since Hodgkin and Huxleys seminal research on quantitative description of membrane current and its application to conduction and excitation in nerve (1952). The purpose of this report is to advance in the understanding of the dynamics out of equilibrium that has been explored through biophysics, by means of stochastic modelling. The concept of conductance function is incorporated that allows to find the profile of conformational energy where the channel in study is found The methodology is based on the physical analysis in a mesoscopic scale of the phenomenon and its mathematical modelling. The fit of the model is assessed using a method based on Kolmogorov-Smirnovs test.

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE.
E-mail address: `rrebolle@uc.cl`

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE.
E-mail address: `rodrigocofre@gmail.com`