

Temporal point processes can be used for modeling of messages transmission in the nervous system. The aim of the work is to describe selected types of point processes, namely, Poisson process, renewal process and Cox process. Further, we analyse real data, we test the suitability of the probabilistic model. The beginning of the thesis introduces us to the history of analysis of spike trains as point processes. The first chapter summarizes the neurophysical base of neurons. In the second section attention is paid to the description of the selected point processes and in the last chapter we test the suitability of selected model on the real data.