**Simple spike dynamics of Purkinje cells in the macaque vestibulo-cerebellum during passive whole-body self-motion**

**Dataset**

**File “Figure 3 Data.xlsx”**

This excel sheet contains response statistics (peak-trough amplitude and p.c.c.2) of all neurons.

**File “Laurens\_Angelaki\_Data.mat”**

This dataset contains the spiking activity of 46 neurons recorded during combination of tilt and translations. The data is saved in a single .mat file that contains two structures:

* The structure ‘Neurons’ contains information about all neurons, as well as the firing rate recorded during all repetitions of each motion stimulus.
* The structure ‘Motion\_Stimuli\_WaveForm’ contains the average waveform of each motion stimulus.

The fields of the Neurons structure contain the following information:

* Animal: the name of the animal from which the neuron was recorded.
* Trials: a structure containing the response to each repetition, which contains:
  + spikes: the timestamp of each spike, in s, aligned such that t=0 corresponds to the middle of the motion stimulus.
  + duration: the duration of the motion stimulus (250ms or 500ms).
  + type: the type of motion stimulus (1=tilt only, 2: translation only, 3: tilt-translation).
  + sign: the direction of the motion stimulus (-1 or 1, see below).
  + stimulus\_axis: the axis along which the stimuli were applied in the head’s horizontal plane. stimulus\_axis = 0 / 90 / 45 / 315 indicates that the positive acceleration axis is forward / leftward / halfway between forward and leftward / halfway between forward and rightward respectively (see below).

Motion\_Stimuli\_WaveForm is a structure array (3 lines by 2 columns) where the 3 lines contain the stimuli waveform for the 3 types of stimuli (1st line=tilt only, 2nd: translation only, 3rd: tilt-translation), and the 2 columns contain stimuli waveform for the 2 stimuli duration (1st column: 250ms; 2nd column: 500ms). Each structure element contains two variables:

* + time: a time vector, in s, centered such that t=0 corresponds to the middle of the motion stimulus (i.e. that matches the variable ‘spikes’ in the structure ‘Trials’.
  + WaveForm: an array where each line corresponds to one point in time, and where the 8 columns contain the waveform of the motion variables. Tilt motion is converted into the corresponding gravitational acceleration, i.e. 1° is converted into sin(1°)\*9.81 m/s2. The 8 columns contain, in this order: integral of tilt position (in m/s), tilt position (in m/s2), tilt acceleration (in m/s3), derivative of tilt acceleration (in m/s4); linear velocity (in m/s); linear acceleration (in m/s2); linear jerk (in m/s3); derivative of jerk (in m/s4).

The motion waveform corresponding each repetition in the structure ‘Trials’ can thus be identified as follows:

* Locate the element corresponding to ‘type’ and ‘duration’ in the structure ‘Motion\_Stimuli\_WaveForm’.
* Read the corresponding ‘WaveForm’.
* If the variable ‘sign’ is equal to -1, reverse ‘WaveForm’.
* ‘WaveForm’ will contain the motion variable along the head axis encoded by ‘stimulus\_axis’ (note that this was ignored in our study, as we simply analyzed neuronal responses along the direction where they were recorded, irrespective of where this direction lies).