We decided to divide PING- group into two “competing” groups.

**PING model instructions:**

M1: Fundamentals. Understand at sufficient efficiency how the model works and runs.

M2: Run the model and draw the timeseries so you have phase validity. Make the model do what it should do.

These run on a 1 node system, where you have, say, 80 E´s and 20 I´s.

Make spiking rasterplot. The approximation of the phase validity is the sum of their signal.

Actual M3: 1- node E/I ratio. Create a plot where you have order as a function of E/I -ratio. Basically, find the critical point i.e. phase transition of the graph. Here E=I. The actual determination of the E/I ratio is up to us.

Actual M4: Create 2-node PING system.

Goal for the next meet here would be to reach M3.

**Connectome fitting:**

Basic unit is an oscillator, which is basically a moving particle on a unit circle, moving with some speed, creating a frequency. Each oscillator is defined by their angle = theta = phase. The model drives at narrowing down the phase different between different oscillators. Small order oscillators are distributed, high order they are closer to each other. Finally, they synchronize with each other.

Here oscillators are considered to be a “small” population of neurons.

Instead of having E/I as the parameter, we have how each node interact with themselves, K and how nodes interact with each other, L. K = local, L = global.

Next question is how to parameterize. The parameter K should match the graph for PING-model. We need to physiologize the model as much as possible.

Measure the functional connectivity (operationalize it) One can look at the connectome synchronicity for example. complex Phase locking value is the key to operationalization. It is a the average between oscillator phase differences.

Next the synchronicity between nodes. If the strength of the connection is weakened, we should weaken syncronity.

How do we fit parametres. Lets say we have timeseries and model. The model has some parametres. By moving the parametres, we get some results. By looking at the error between these two timeseries, we can change the parameters of the model.

M1. Fundamentals

M2. Run the model

M3. Model vs real data. Phase reset, compare

M4. Fitting. Start to narrow the error gained in the model.

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