

**C**

True Kuramoto oscillators dynamics :

$$\dot{\theta}_i = \omega_i + \sigma \sum_{j=1}^N A_{ij} \sin(\theta_j - \theta_i)$$

$$\sum_{i=1}^N \omega_i = 0, \sigma : 0 \rightarrow 1$$



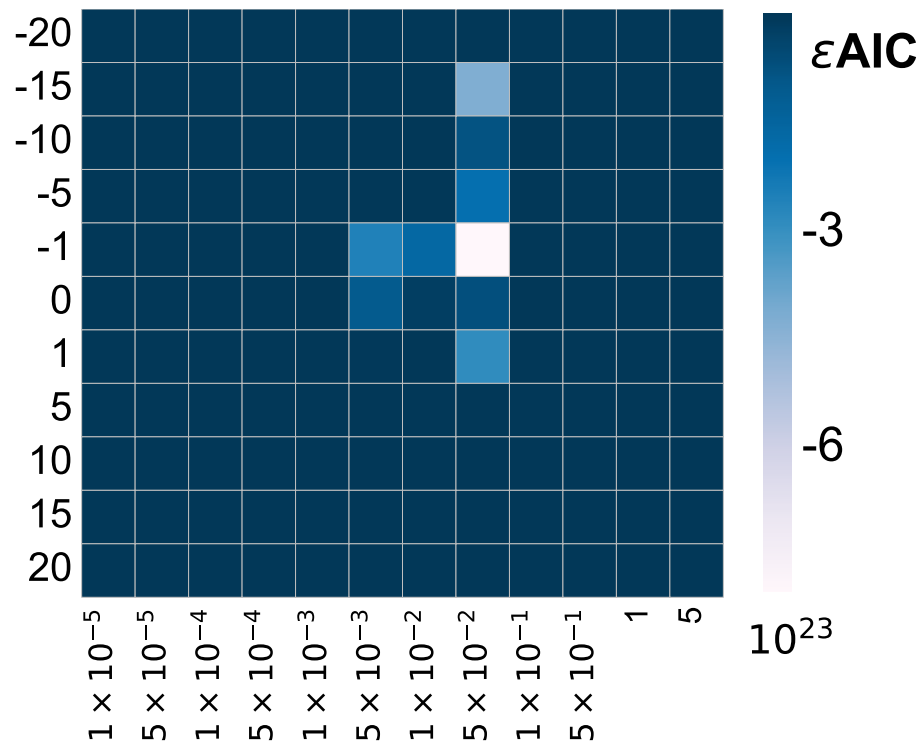
Surrogate model :

$$\dot{\theta}_i = (0.0127 + 0.0202\nu) \sum_{j=1}^N A_{ij} \sin(\theta_j - \theta_i)$$

 $\nu : -1 \rightarrow 49$ 

Grid search result :

$$\nu_1 = -1, \Delta\nu = 5 \times 10^{-2}$$



Dynamics prediction

