

A

model: 2D LDS

$$\tau \frac{d\mathbf{x}}{dt} = A\mathbf{x}$$

$$A = \begin{bmatrix} a_{1,1} & a_{1,2} \\ a_{2,1} & a_{2,2} \end{bmatrix}$$

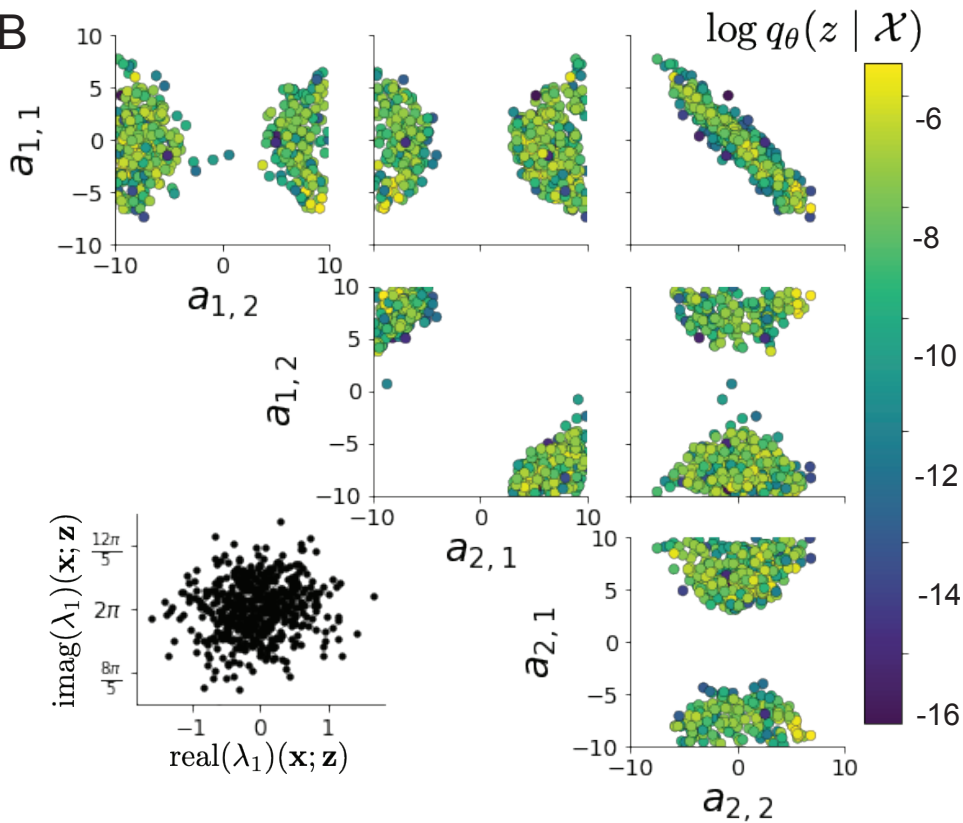
emergent property:

1Hz oscillations

$$\mathcal{X} : \mathbb{E}_{\mathbf{z}, \mathbf{x}} \begin{bmatrix} \text{real}(\lambda_1)(\mathbf{x}; \mathbf{z}) \\ \text{imag}(\lambda_1)(\mathbf{x}; \mathbf{z}) \end{bmatrix} = \begin{bmatrix} 0 \\ 2\pi \end{bmatrix}$$

$$\text{Var}_{\mathbf{z}, \mathbf{x}} \begin{bmatrix} \text{real}(\lambda_1)(\mathbf{x}; \mathbf{z}) \\ \text{imag}(\lambda_1)(\mathbf{x}; \mathbf{z}) \end{bmatrix} = \begin{bmatrix} 0.25^2 \\ (\frac{\pi}{5})^2 \end{bmatrix}$$

B



C

