Supplementary Information
Learning complex system dynamics from vectors fields over discrete measure spaces

Ingrid Membrillo Solis[1*], Maria van Rossem[2], Tristan Madeleine[1], Nina Podoliak[2], Tetiana Orlova[2], Giampaolo D'Alessandro[†1], Jacek Brodzki[†1], and Malgosia Kaczmarek[†2]

[1]Mathematical Sciences, University of Southampton, Southampton SO17 1BJ, UK
[2]Physics and Astronomy, University of Southampton, Southampton SO17 1BJ, UK

1 Evolution of the solution of the G-L equation

2 Supplementary videos

1. Gradient of frozen states
2. Gradient of Turing patterns

[†]These authors jointly supervised this work.

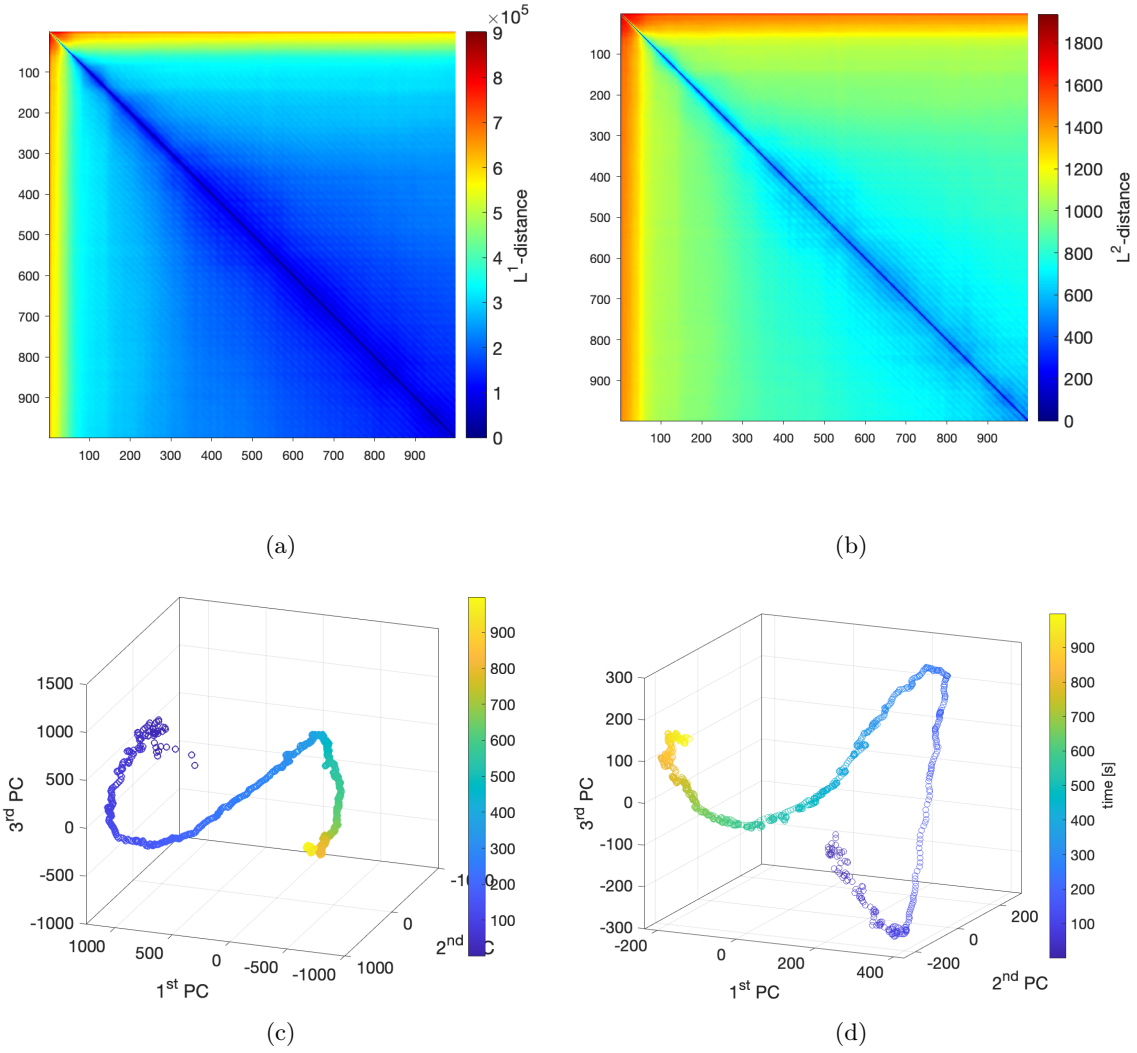

Figure 1: Time-evolution of the gradient field of frozen states of the Ginzburg-Landau equation.(a) $L^{1,1}$ and (b) $L^{2,2}$ distance matrices for the evolution of the gradient field of frozen states. Embeddings of the (c) $L^{1,1}$ and (d) $L^{2,2}$ distance metrics via classical multidimensional scaling

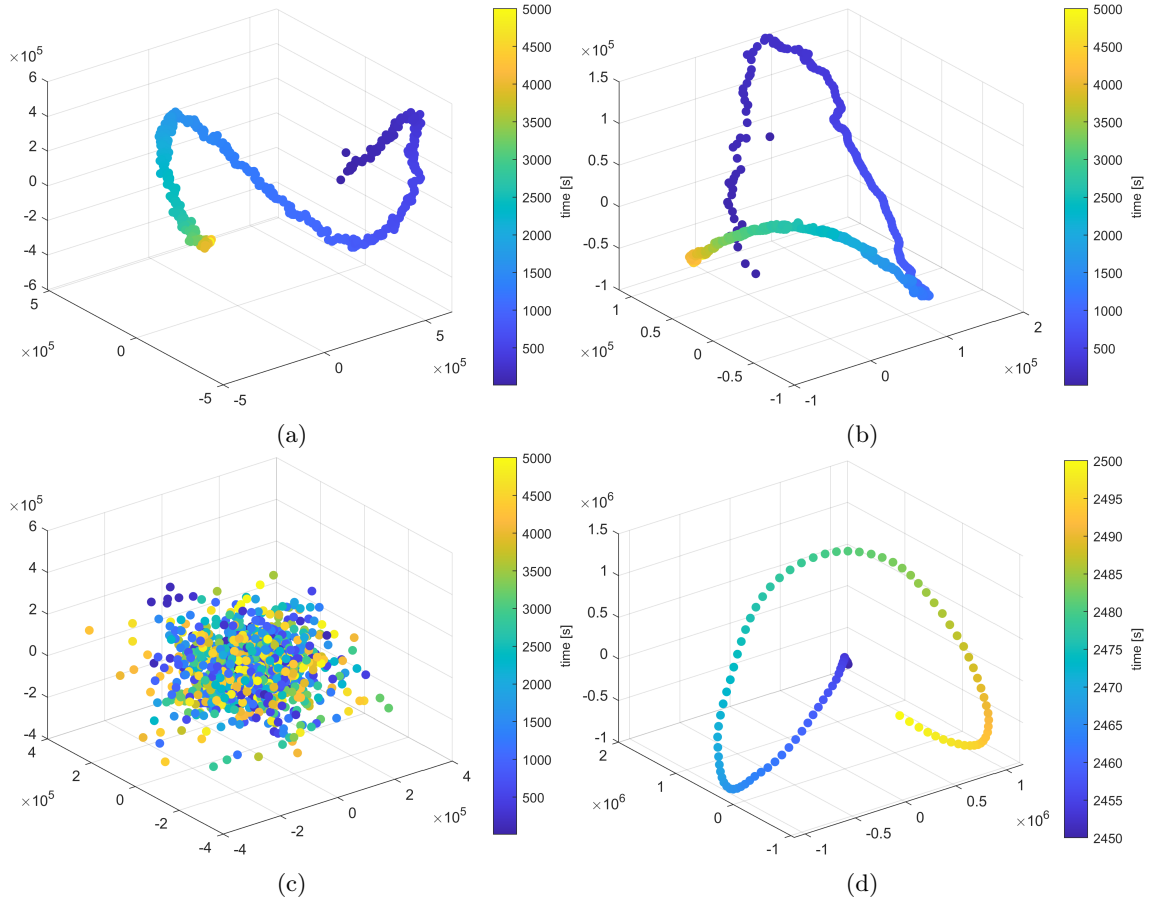

Figure 2: Embedding of the gradient vector field $L^{2,2}$distance matrix for different phases: (a) defect turbulence with spirals, (b) frozen states and (c) defect turbulence. The time range is 5000s with 5s increments. (d) shows defect turbulence for a higher time resolution of 0.5s, between 2450 and 2500s.