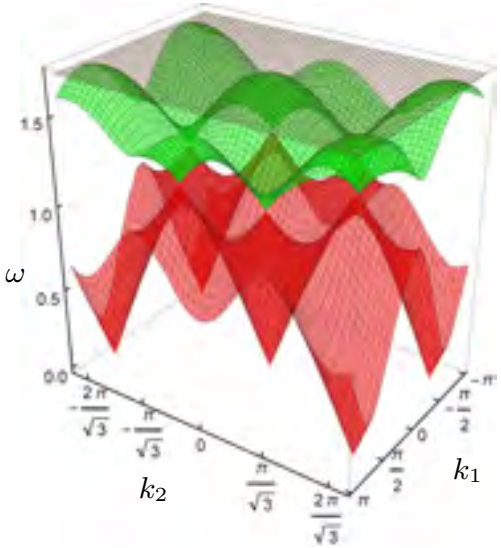
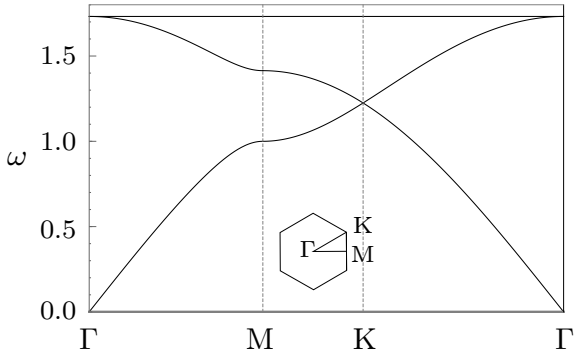
Hexagonal Gyro-elastic lattice: Dispersion surfaces

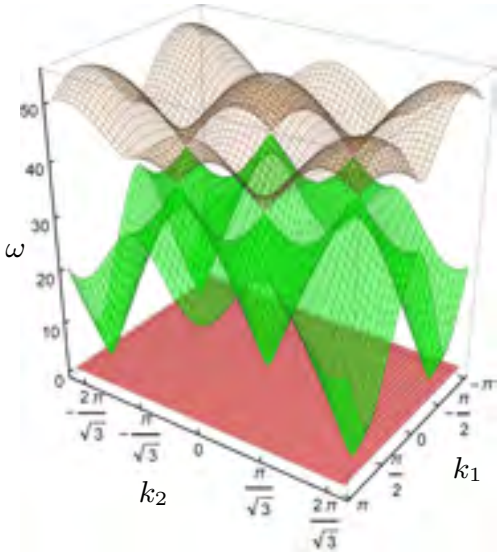
$\alpha = 0$

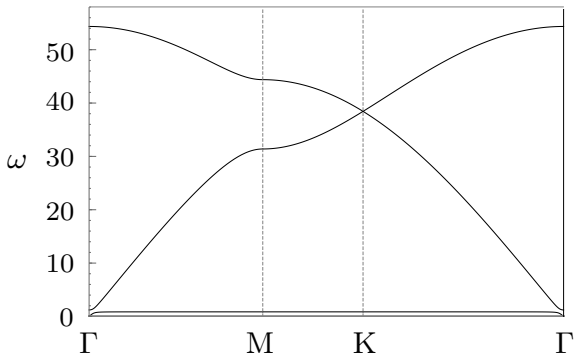




(a)

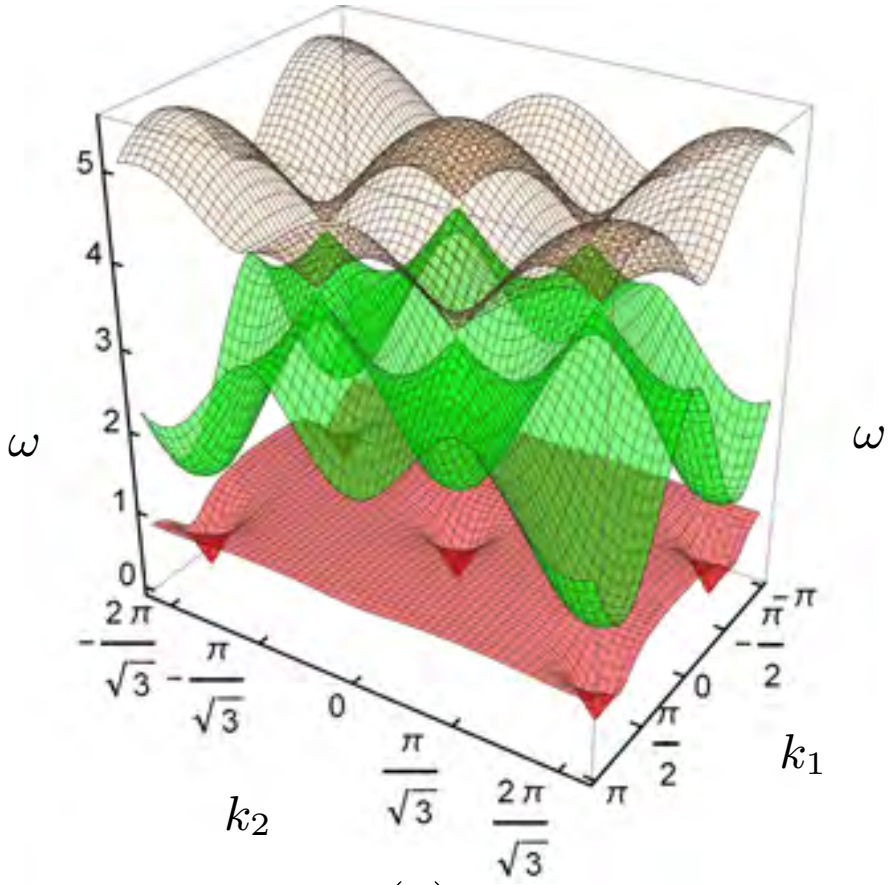
$\alpha = 0.9999$

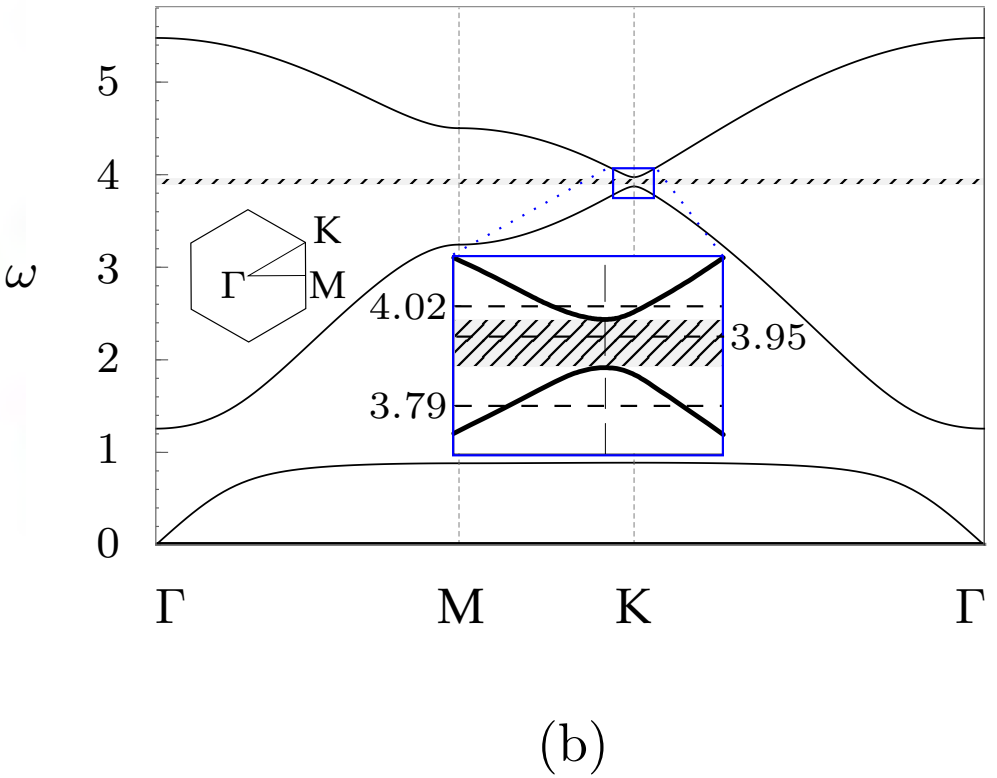




(b)

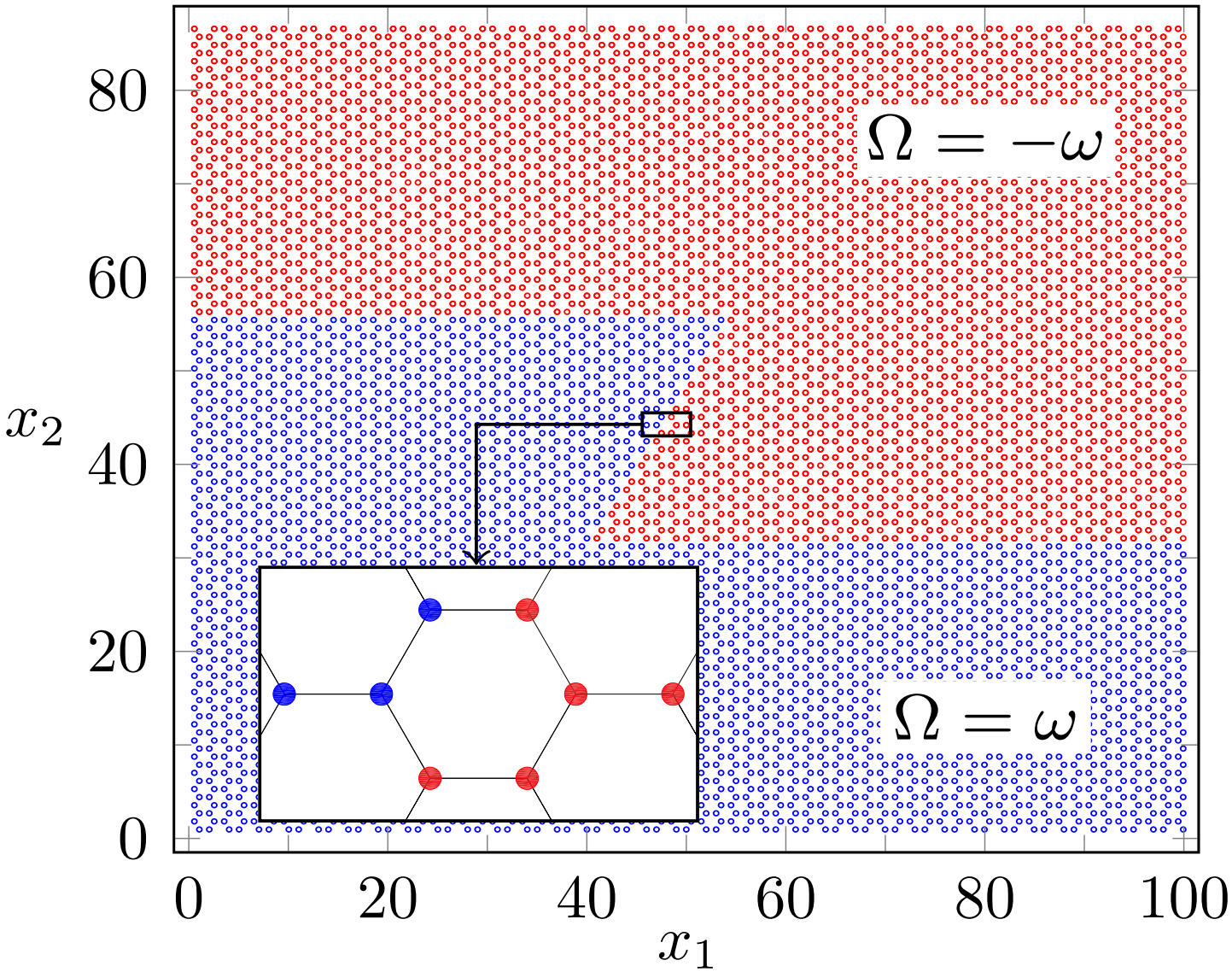
Dispersion surfaces for $\alpha = 0.9$





1. Frequencies 3.79 and 4.02 (inside the pass band) can be lead to interfacial waveforms.
2. Frequency 3.95 (inside the stop band) can lead to edge modes.

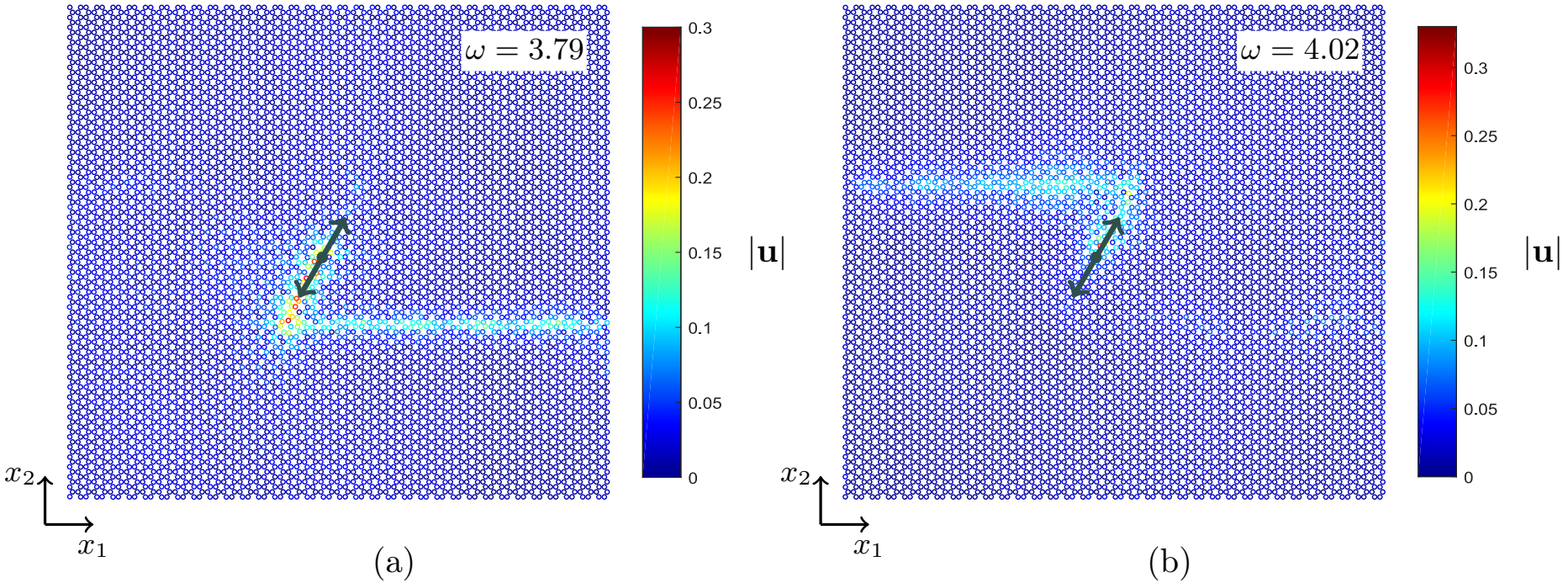
Interfacial waveforms along a zig-zag interface $(\alpha = 0.9)$



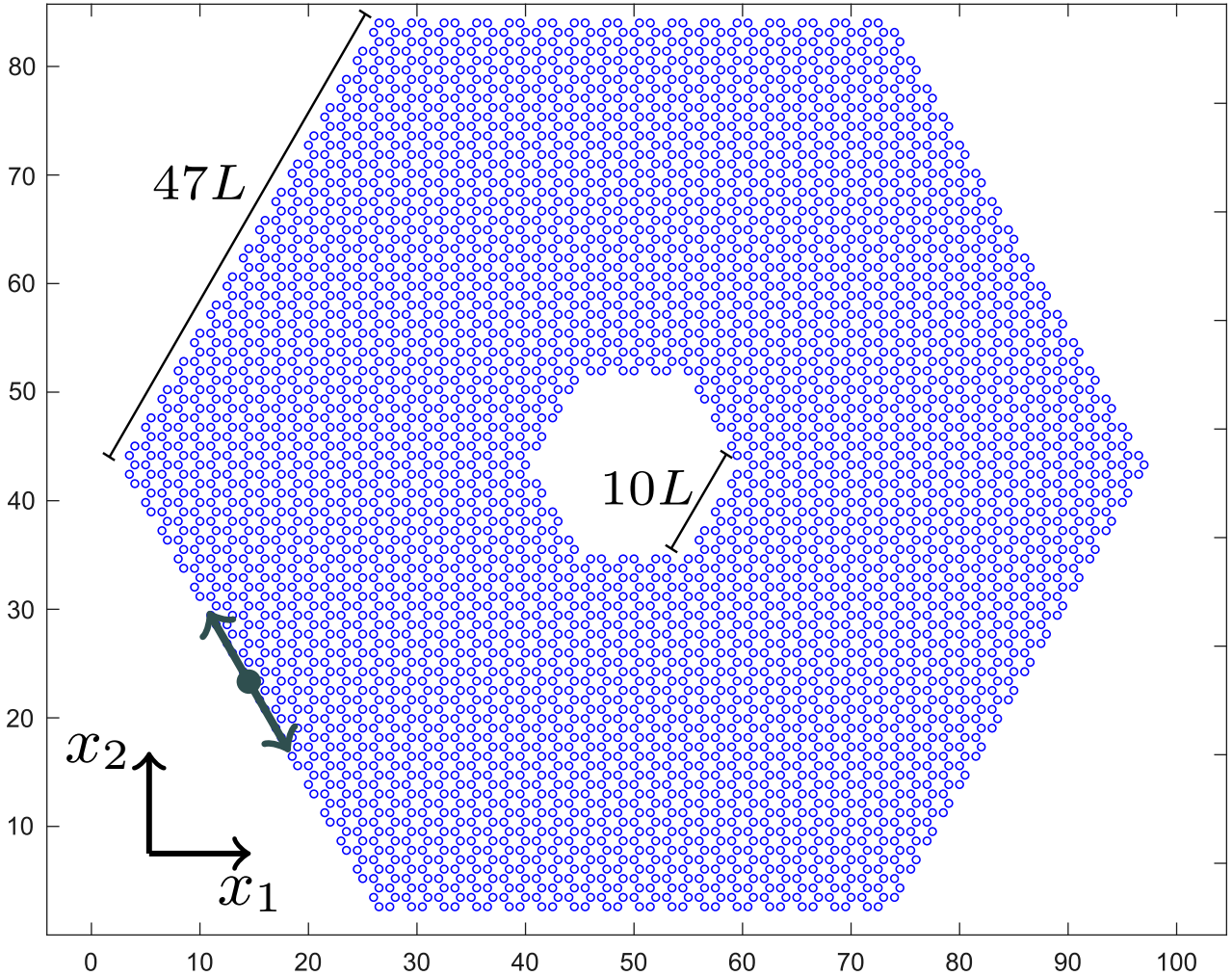
Interfacial waveforms ($\omega = 3.79$)

Interfacial waveforms ($\omega = 4.02$)

Interfacial waveforms along a zig-zag interface $(\alpha = 0.9)$



Applications of gyro-elastic lattices: Topological protection



$\alpha = 0.9, \Omega = \omega,$ Forcing frequency is 3.95

A gyro-elastic topological insulator: transient simulation