

Note for lattice dynamics experiment

1. Use the experimental kit as a reference to have an idea about the experiment.
2. Perform the experiment by replicating the electrical analogue circuits given in the manual on a breadboard using components: $L = 1\text{mH}$, $C \approx 47\text{nF}$, $C_1 \approx 150\text{nF}$. Use at least 5 units (5 lattice points). You could try other combination of values available in the laboratory.
3. Use a function generator to provide input to the circuit at varied frequency.
4. Collect the output from the circuit using an oscilloscope. Compare the phase relation between input and output using XY mode.
5. Record and plot phase difference (θ) as a function of input frequency. Determine the maximum and cut-off frequencies and compare them with theoretical values.