

Notes for Inverse Spectral Homework

S. Hardesty

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1 Data

Here is the data for three strings, with two, four, and six beads, respectively. The two and four-bead data is from the day when Dr. Embree couldn't make it and we all just went to the lab - Erin took the six-bead data on 23 March.

N	2	4	6
f_1	33.8 Hz	22.1 Hz	22.0 Hz
f_2	49.9 Hz	41.4 Hz	48.8 Hz
f_3		72.4 Hz	65.3 Hz
f_4		81.2 Hz	86.2 Hz
f_5			97.5 Hz
f_6			114.1 Hz
σ	24.7 N	24.7 N	36.3 N
$\sum l_j$	78.5 cm	78.5 cm	78.5 cm

2 Units

Don't forget that the eigenvalues λ are squares of angular frequencies. You will need to multiply the above frequencies by 2π , and then square them.

The other issue is that Dr. Embree's notes assume that $\sigma = 1$. You'll need to make the units work out.