

Physics of Musical Sound

Class 15
Read Chapter 14.
Class in Wellin Monday!
Quiz on Wednesday

10/15/12

Physics 120

Plucking Strings

- The plucking point affects the tone color of the sound.
- The Modes with anti-nodes near the plucking point are emphasized.
 - The nearer the plucking point is to the anti-node the more the mode is emphasized.

8/30/01

Physics 120

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- Modes with nodes at the plucking point are missing from the spectrum.

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Physics 120

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 - Plucking at the mid-point gives a hollow, lute-like sound that is missing the even harmonics.

8/30/01

Physics 120

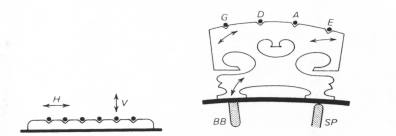
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- Modes with nodes at the plucking point are missing from the spectrum.
 - Plucking at the mid-point gives a hollow, lute-like sound that is missing the even harmonics.
- Shape/Hardness of pluck affects sound
 - Thin/hard like fingernail or plectrum give more high frequencies
 - Wide/soft like finger/thumb damp very high frequencies

8/30/01

Physics 120

Violin and Guitar Bridges



Guitar bridge

Low, flat, hard to move.
Only moves up-down
Fairly small down-bearing.

Violin bridge

Tall, flexible, easy to move
Converts side-side motion of
String into up-down motion.
Large down-bearing..

8/30/01

Physics 120

Hammering Strings

- The hammer point affects the tone color of the sound.
- The Modes with anti-nodes near the hammer point are emphasized.
 - The nearer the hammer point is to the anti-node the more the mode is emphasized.
- Modes with nodes at the hammer point are missing from the spectrum.
 - Hammering at the mid-point gives a hollow, lute-like sound that is missing the even harmonics.
- Shape/Hardness of hardness affects sound
 - Thin/hard like dulcimer hammer gives more high frequencies
 - Wide/soft like piano hammer damps very high frequencies

8/30/01

Physics 120