

Chordophones



from
ANIMUSIC

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Physics of
Music
PHY103

Tradeoffs in chordophones

Strings only

- High tension means a lot of stress on the instrument.
- More massive strings have lower pitches under lower tension
- However thick strings don't bend very easily
 - Loss of high frequencies leading to dull or soft timbre.
 - Shift of overtones sharpwards

Piano spectrum



Higher harmonics are **higher** than multiples of fundamental

Why? Wave equation requires more energy for shorter waves – non-linear wave equation on string