Piano Tuning Demonstration

by a physicist using his laptop, a microphone, and a hammer

(engineers welcome as well, and even musicians)

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7:30 pm Tuesday, September 21, 2010

130 Hahn North

Ever want to fix up that old piano at home? With a little bit of engineering and physics training, one can make a huge difference. I'll show you how to transform a $50 piano from the thrift store into something playable again. (I actually fixed and tuned my home spinet this past summer – and it came out pretty well according to my daughter who plays.)

Introduction

1. Modes on a wire; where the hammer hits; timbre
2. Fourier transform (the engineer's best friend): forward, reverse, ***fast***
3. Octaves and mod 2 equivalent notes
4. Just Temperament (why certain notes sound good together; psychoacoustics?)
5. Circle of Fifths (and the Wolf fifth)
6. Number of notes per octave (define 'cent')
7. Equal Temperament (why Western cultures are so hyper)
8. Self-inharmonicity of a ***single*** real wire (Spinet to Concert Grand)
9. Stretch tuning

Doing it!

10. Pianos really ARE made to come apart (and go back together)
11. Action (removal and regulation)
12. Tuning: Pins, Unisons, Octaves, Stretch (where the 'art' comes in)
13. What you CAN'T play with this tuning… (microtonal compositions)

(if there's time and interest)

14. Drum Tuning (demo with a floor tom)
15. Relative pitches of your kit