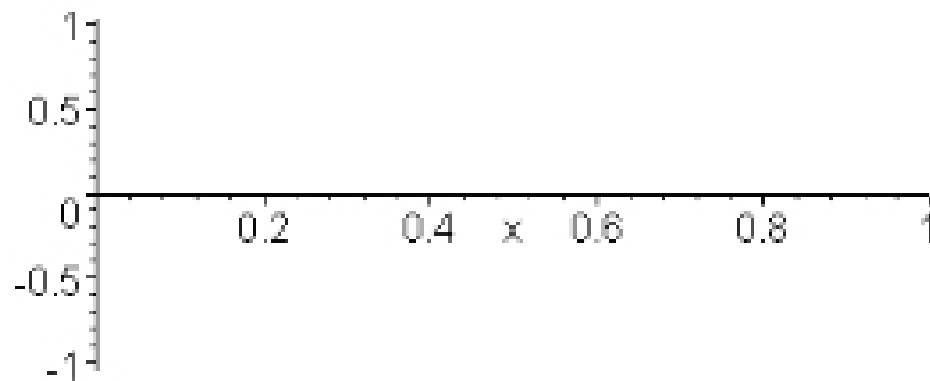
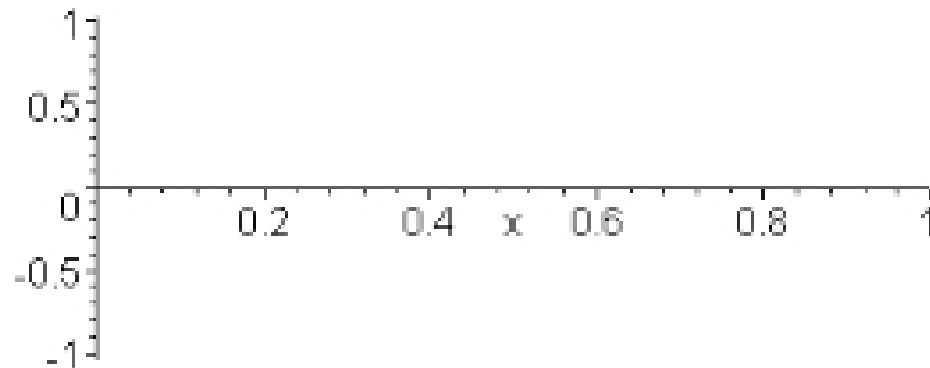
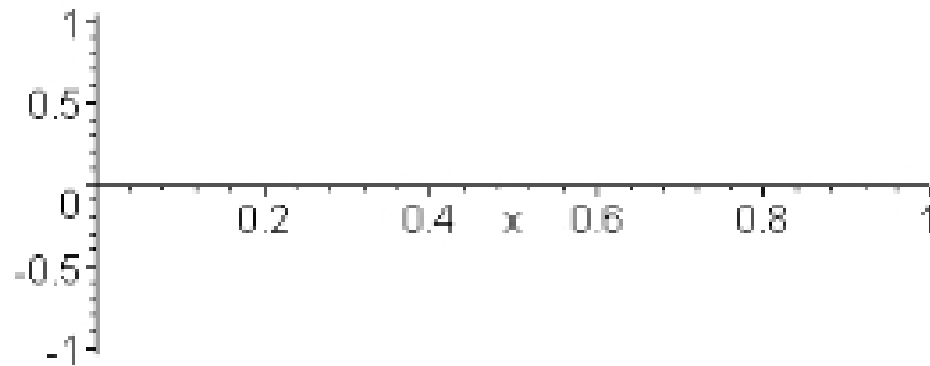


# *Physics and Music*

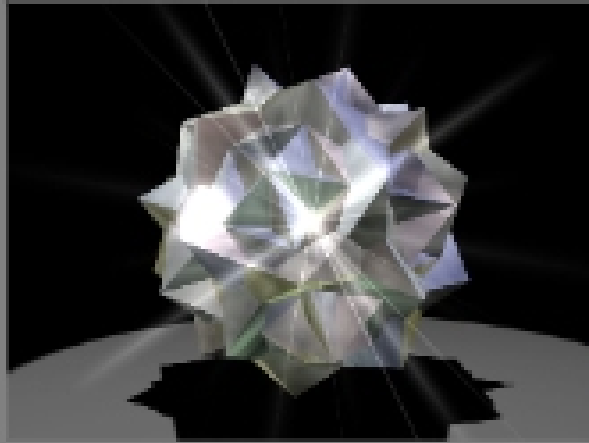
## *PHY103*

### Approach for this class

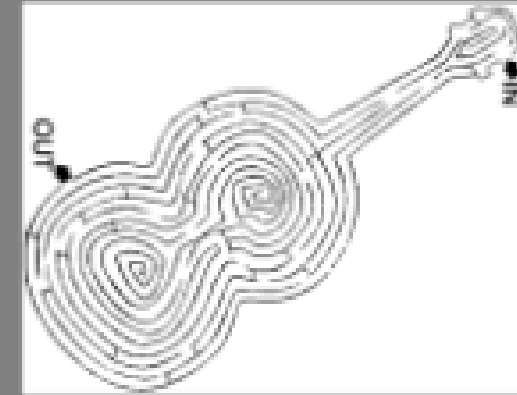
#### Lecture 1



Animations from <http://physics.usask.ca/~hirose/ep225/animation/standing1/images/>



What does



*Physics* have to do with *Music*?

1. Search for understanding of the natural world

Quantitative theory. Physics provides a framework.

Linear 1D Wave equation describing waves on a guitar string has solutions that are traveling waves with speed  $c = \sqrt{T / \rho}$

Using this you can predict the pitch of a string and how it depends on string density and tension.

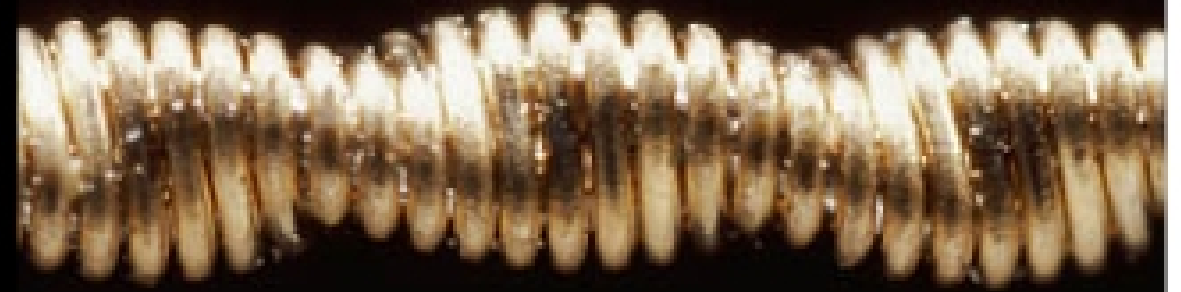
However, if one tries to take into account other physical effects you get equations lacking simple solutions.

## 2. Method of Experimental Enquiry

For example: By experimenting with different kinds of strings you might better understand what affects the damping time, “warmth” of tone, and durability.

Different scenarios and explanations can be tested via experiment.

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An advertisement for Elixir guitar strings. On the left, a vertical close-up of a string with a white and gold braided coating. On the right, a purple background with the Elixir logo in gold script, followed by the text "GUITAR STRINGS FROM GORE". Below this, the slogan "YOU MAKE GREAT MUSIC. WE MAKE GREAT MUSIC LAST LONGER." is written in white capital letters.

*Elixir*  
GUITAR STRINGS FROM GORE

YOU MAKE  
GREAT MUSIC.

WE MAKE  
GREAT MUSIC  
LAST LONGER.