

## CHAPTER OVERVIEW

### 3.10: Strings

In this chapter we start with resonance on a string and then look at resonances on two dimensional surfaces. A brief introduction of three dimensional resonance in an enclosed volume is given and will be expanded on in Chapter 16 on Acoustics. Once the basic behavior of waves on a string, surfaces and in an enclosed volume are examined we look at how these principles end up explaining how stringed instruments such as guitars and violins work.

#### Key Terms:

String resonance, nodes, anti-nodes, fundamental, harmonics, partials, overtones, conservation of energy (again!), nodal lines, holographic interferometry, Helmholtz resonance, f hole, bridge, wolf tone, sound post, bass bar, plectrum, tangent, piano sound board.

#### 3.10.1: Driven String and Resonance

##### 3.10.1.1: String Resonance

##### 3.10.1.2: Driven String Simulation

#### 3.10.2: Plucked String

##### 3.10.2.1: Plucked String

##### 3.10.2.2: Plucked String Simulation

#### 3.10.3: Vibrating Plates Simulation

##### 3.10.3.1: Surface Resonances

##### 3.10.3.2: Vibrating Plate Simulation

##### 3.10.3.3: Other Surfaces

##### 3.10.3.4: Volume or Helmholtz Resonance

##### 3.10.3.5: Stringed Instruments

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