

PHYSICS AND ASTRONOMY COLLOQUIUM

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“A Tale of Two Fiddles”

Abstract

The Western violin and the erhu, the Chinese violin, are at first glance, markedly different instruments, being apparently related only by their bows. The violin soundbox is made of spruce and maple, has a complex shape, and an asymmetrical interior. The erhu soundbox is a simple cylinder closed on one side by a pre-tensioned python skin and open at the other. However, delving into the vibro-acoustics of each structure, deep similarities emerge, both with each other and with that most ancient musical instrument, the human voice.

Acoustics is a field that tends to fall between the cracks of physics and engineering, and musical acoustics falls between the cracks of acoustics and music. Thus I will not assume prior knowledge of the field.

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