

Abstract Submitted
for the APR16 Meeting of
The American Physical Society

Exploring the Physics of Music with Temperament Studio

DALLIN DURFEE, JOHN COLTON, Brigham Young University — The physics of waves, resonance, harmonics, and beats has determined how musical instruments are tuned, and has even affected the kinds of music written in different time periods. The laws of physics make it impossible for any fixed scale to have perfect consonance for all chords in all keys, and as a result, various musical scales, or temperaments, have been developed and used throughout history. The study of musical temperament is a rich application of wave physics. It ties several principles together in a context which can be very motivating for students. Furthermore, the topic is accessible to students in introductory classes. We have developed an open source application called Temperament Studio which allows students to explore musical temperament and to hear and measure the effects predicted by wave physics.

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Date submitted: 17 Dec 2015

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