

# PHYSICS CAREERS

## Piano Tuner

**Piano tuners apply their knowledge of one aspect of physics—sound—to their everyday work. To learn more about piano tuning as a career, read the interview with Ramón Ramírez.**

### *What schooling did you receive in order to become a registered piano technician (RPT)?*

I started off as a music education major and completed that degree. Then, I became the first person in the United States to receive a master's degree in applied music with piano technology as the major.

### *Did you receive encouragement from a teacher or some other person?*

Yes. First, my parents and siblings, who helped me decide to major in music, encouraged me. Later, I was instructed by acoustician Owen Jorgensen, who authored three of the most influential books on historical tuning. Also an accomplished performer, Owen Jorgensen is a phenomenal piano tuner and technician. His work with experimental tuning has opened a new direction for music of the future.

### *What sort of equipment do you use?*

The three most basic tools are a type of wrench called a *tuning hammer*, mutes to silence strings that should not be sounding at a given moment, and a tuning fork, which is used to establish precise pitch. Additionally, a metronome and a watch or clock are useful for timing beats. A calculator can be used for operations such as converting beats per second to beats per minute.

### *What is your favorite thing about your job?*

This question is difficult because there are so many details about my work that I like. Possibly, it is the



Each piano string is wrapped around a tuning pin. Rotating the pins with a tuning hammer alters the string tension, which changes the pitch.

people I work with on a daily basis. Piano owners tend to be interesting and often enjoyable people.

### *How does physics influence your work?*

Physics is the vehicle by which the complex mathematics of tuning moves from theory to audible reality. The harmonic series might seem only theoretical on paper, but modern tuners have to clearly hear individual pitches up to the sixth harmonic, and historical systems required a working ability to hear to the seventh. (A few tuners can hear to the twelfth harmonic.)

### *What advice would you give to students who are interested in piano tuning?*

Obtain a used piano, some basic tools, and a copy of Owen Jorgensen's 1992 book, *Tuning*. Begin by tuning the simplest historical systems and gradually work your way through more complex systems. Because attending one of the very few schools that teach piano technology will probably require relocating, you can find out if you have talent and/or interest before making a larger investment.

