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- [Jonathan Coulton](#), Contributing Troubadour for [Popular Science](#).
- [Laura Veirs](#), who knows her way around a polysyllable.
- [Thomas Dolby](#), godfather of scientific pop.
- [Squeaky](#), fact-based, crunchy rock about fusion containment & rocket science.
- [Cosmos II](#), a.k.a. Boston University astronomer [Alan Marscher](#).
- [Dr. Fiorella Terenzi](#), astrophysicist who makes music from cosmic radio sources.
- [Dr. Jim Webb](#), astronomy professor and acoustic guitarist.
- [Jeff "Dr. Chordate" Moran](#), educator, folk singer and parodist.
- [Artichoke](#), the band behind *26 Scientists, Vols. I and II*.
- [They Might Be Giants](#), unrelenting proponents of scientific popular song.
- [Symphonies of Science](#), the people who make Carl Sagan and others sing.
- [Giant Squid](#), doom metal about the sublime horrors of marine biology.

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# Noise hurts. Why?

Entered By: grant on November 7, 2011 No Observations

*Science* explores why [the noise of nails on a chalkboard is so awful](#):

As they will report next week at the Acoustical Society of America conference in San Diego, California, [Michael Oehler of the Macromedia University for Media and Communication in Cologne, Germany, and Christoph Reuter of the University of Vienna] found that a listener's skin conductivity changed significantly when the person heard a sound he or she later reported as unpleasant, showing that disturbing sounds do cause a measurable physical reaction. More surprisingly, they found that the frequencies responsible for making a sound unpleasant were commonly found in human speech, which ranges from 150 to 7000 hertz (Hz). The offending frequencies were in the range of 2000 to 4000 Hz. Removing those made the sounds much easier to listen to. Deleting the tonal parts of the sound entirely also made listeners perceive the sound as more pleasant, whereas removing other frequencies or the noisy, scraping parts of the sound made little difference.

The ratings also changed depending on what the listeners thought the sounds were. If they thought a sound came from a musical composition, they rated it as less unpleasant than if they knew it actually was fingernails on a chalkboard. But their skin conductivity changed consistently even when they thought the chalkboard sound was from music and rated it as less unpleasant.

The researchers suspect that the shape of the human ear canal may be to blame for the pain. Previous studies have shown that the ear canal amplifies certain frequencies, including those in the range of 2000 to 4000 Hz.

It's an amplification problem... and a sounds-like-speech problem.

[via [Dan Levitin](#)]

Tags: [acoustics](#), [psychology](#)



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[1](#) [2](#) [3](#) [4](#) 5 [6](#)  
7 8 [9](#) [10](#) [11](#) 12 13  
14 15 16 17 18 19 20  
21 22 23 24 25 26 27  
28 29 30


[« Oct](#)

"Is it a fact—or have I dreamt it—that, by means of electricity, the world of matter has become a great nerve, vibrating thousands of miles in a breathless point of time?"

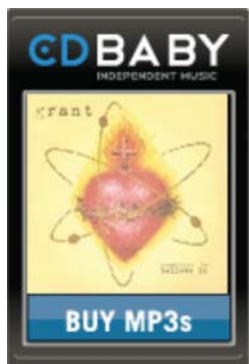
— Nathaniel Hawthorne, *The House of the Seven Gables*, 1851


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