

Physicists simulate sounds of the Higgs boson (w/ Video)

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You can listen to the sounds of different particles at www.LHCsound.com.

(PhysOrg.com) -- If particle physicists ever find the Higgs boson, they might be hearing its signature rather than - or in addition to - seeing it. The different sounds that particles make can give physicists another way to analyze their data, explains a team of physicists working on data sonification, which is the process of converting data into sounds. Partly for research and partly for public awareness, the scientists have simulated the sounds that the Higgs boson and other subatomic particles might make at the Large Hadron Collider (LHC).

"When you are hearing what the sonifications do you really are hearing the data," said Archer Endrich, a composer and software engineer working on the project. "It's true to the data, and it's telling you something about the data that you couldn't know in any other way."

Some of the data comes from Atlas, one of six detectors at the LHC. Atlas uses a calorimeter to measure the energy of the particles that collide inside of it. The calorimeter consists of seven concentric layers, each of which can be represented by a note. The note's volume and pitch depend on the amount of energy deposited in that layer and its location in the layer, respectively. As physicist Lily Asquith explained, large amounts of energy make louder sounds than small amounts, while energy closer to an observer will have a higher pitch than energy located further away.

Although the project may give [physicists](#) a new tool to analyze their data, the main goal is to bring attention to the beauty in science, helping promote public awareness of science exploration. You can listen to sounds of the [Higgs boson](#) and other particles at the project's website. The LHCsounds team, led by Asquith, is also working on developing cellphone ringtones and plans to host a public performance of the sounds performed by musicians from its scientific community. Musicians from around the world are also working with the sounds to incorporate them into compositions.

"We can hear clear structures in the sound, almost as if they had been composed," said Richard Dobson, a composer involved with the project. "They seem to tell a little story all to themselves. They're so dynamic and shifting all the time, it does [sound](#) like a lot of the music that you hear in contemporary composition. You feel closer to the mystery of Nature which I think a lot of scientists do when they get deep into these matters."

To listen to more sounds of the LHC, visit www.lhcsound.com.

More information: via: [BBC News](#)

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