

Sound and Science: God's Wonders to Perform

Resources for further learning

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Listed in order presented in the sectional

1. What is sound?

“Harmony and Proportion” (summary of Plato, Pythagoras, et al)

<http://www.aboutscotland.com/harmony/harmony.html>

Thomas H. Troeger, “You Are a Woodwind and a Drum: Recovering the Image of God through Congregational Song” in *The Hymn*, Vol. 60, No. 2 (Spring 2009), p. 10-21

Thomas H. Troeger, “First Find a Steady Beat” in *Borrowed Light: Hymn Texts, Prayers and Poems* (Oxford University Press, 1994)

Daniel Levitin, *This Is Your Brain on Music: The Science of a Human Obsession* (Dutton, 2006)

2. Human and other transmitters and receivers

Wikipedia chart of animal hearing ranges

https://upload.wikimedia.org/wikipedia/commons/5/5d/Animal_hearing_frequency_range.svg

“Highest frequency hearing – animal,” Guinness World Records article

<https://www.guinnessworldrecords.com/world-records/highest-frequency-hearing-animal>

Bernie Krause, *The Great Animal Orchestra: Finding the Origins of Music in the World's Wild Places* (Little, Brown and Company, 2012)

David Rothenberg, *Bug Music: How Insects Gave Us Rhythm and Noise* (St. Martin's Press, 2013)

Ed Yong, *An Immense World: How Animal Senses Reveal the Hidden Realms Around Us* (Random House, 2022)

Jordyn Reiland, University of Denver: “When Crickets Change Their Tune, Flies Change Their Game, DU Professor Discovers” <https://www.du.edu/news/when-crickets-change-their-tune-flies-change-their-game-du-professor-discovers>

Discovery of Sound in the Sea (snapping shrimp sounds)

<https://dosits.org/galleries/audio-gallery/marine-invertebrates/snapping-shrimp/>

Jillian Mock, Audubon Magazine, “Hummingbirds Shake Their Tail Feathers to Generate High-Pitched Sounds” <https://www.audubon.org/news/hummingbirds-shake-their-tail-feathers-generate-high-pitched-sounds>

Koala sounds <https://www.youtube.com/watch?v=ocIR6B-YtYE>

3. Music of the spheres

Apollo 17 mission (1972, including famous “Blue Marble” photo of Earth)
<https://airandspace.si.edu/explore/stories/apollo-missions/apollo-17>

Singing sand dunes <https://www.youtube.com/watch?v=40Qs-0AI9MA>

BBC article “Have You Heard ‘The Hum’?” http://news.bbc.co.uk/2/hi/uk_news/8056284.stm

Voyager I:

- <https://science.nasa.gov/mission/voyager/voyager-1/>
- NASA press conference, September 12, 2013, on transition into interstellar space
<http://www.youtube.com/watch?v=uBqYErSvi6A>
- NPR “Science Friday” interview with scientist Ed Stone
<https://www.npr.org/2013/09/13/222101249/are-we-there-yet-voyager-1-finally-answers-yes>
- U of Iowa video of Plasma Wave Science (PWS) instrument’s data http://www-pw.physics.uiowa.edu/plasma-wave/voyager/v1pws_interstellar_epo.html
- “Symphonies of the Planets - NASA Voyager Recordings”
https://www.youtube.com/watch?v=OLDWKpAkRHs&list=PLXGMGCRM4XfrI9r_2-wXcr3PjDYGBVI_P

Chladni plates experiments <https://www.youtube.com/watch?v=1yaqUI4b974>

The sound of DNA <https://www.calm.com/blog/528-hz#>

NASA website “A Universe of Sound” <https://chandra.si.edu/sound/>

Stephon Alexander, *The Jazz of Physics* (Basic Books, 2016)

BBC video “String Theory: a simple way to understand the universe”
<https://www.youtube.com/watch?v=Jp0NPLKukF8&t=216s>

Michio Kaku video with quote: “The universe is symphony of strings”
<https://www.youtube.com/shorts/jC0JAG26OGQ>

NBC News video “James Webb Space Telescope images shatter understanding of age of the universe” <https://www.nbcnews.com/now/video/james-webb-space-telescope-images-shatter-understanding-of-age-of-the-universe-164025413830>

Hymns:

“God Moves in a Mysterious Way” by William Cowper (1731-1800)

“Praise to the Living God” by Curtis Beach (1914-1993)

“From Wonder to Wisdom” by Mary Louise Bringle (b. 1953)

“For the Fruit of All Creation” by Fred Pratt Green (1903-2000)