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**Bach on other planets or why acoustic sensors make sense in
planetary science**

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The European Huygens probe, which landed on Titan in 2005, is the only planetary probe so far to incorporate passive and active acoustic sensing. Acoustic wave motion is intimately coupled with an atmosphere and thus can give first-hand information on that environment. Motivation for acoustic sensing in planetary atmospheres abounds: anemometry, turbulence measurements, soil characterization, sound generation by lightning, acoustics of liquid hydrocarbon flows, cryovolcanoes, dust devils, quantitative fluid spectroscopy, thermometry, atmospheric boundary layers etc. In this paper it is shown quantitatively how the environments of Mars, Venus, and Titan affect the generation and propagation of audible sound differently. To exemplify, a musical fragment with a rich frequency content was chosen (Bach's Toccata and Fugue in D-minor played by one of the authors) and passed through the three planetary "filters." Appreciation of the nature of these sounds will inform the design of acoustic sensors for future space probes. Furthermore, a demonstration that the physics is sufficiently understood to predict these sounds indicates that the same understanding can be applied quantitatively to interpret alien sounds to estimate the environmental conditions.