# Papers

* [Angular dependence of 12‐kHz seafloor acoustic backscatter: The Journal of the Acoustical Society of America: Vol 90, No 1 (scitation.org)](https://asa.scitation.org/doi/10.1121/1.401278)
* [Shallow-water imaging multibeam sonars: A new tool for investigating seafloor processes in the coastal zone and on the continental shelf | SpringerLink](https://link.springer.com/article/10.1007%2FBF00313877)
* [The effects of fine-scale surface roughness and grain size on 300 kHz multibeam backscatter intensity in sandy marine sedimentary environments - ScienceDirect](https://www.sciencedirect.com/science/article/abs/pii/S0025322705003610)

# Books

* [Acoustics.\_An\_Introduction\_to\_Its\_Physical\_Princip\_5214291\_(z-lib.org).pdf (zlibcdn.com)](https://pdf.zlibcdn.com/dtoken/a3732b53d45495905855f79fddbc561f/Acoustics._An_Introduction_to_Its_Physical_Princip_5214291_(z-lib.org).pdf)
* [Acoustics.\_Basic\_Physics,\_Theory\_and\_Methods\_by\_P.\_511742\_(z-lib.org).pdf (zlibcdn.com)](https://pdf.zlibcdn.com/dtoken/38fa6823339b6e4cd1bead5b62ba424c/Acoustics._Basic_Physics,_Theory_and_Methods_by_P._511742_(z-lib.org).pdf)
* <https://pdf.zlibcdn.com/dtoken/76388aa37a5cdd8d338d5a6fab631c1b/Fundamentals_of_Physical_Acoustics_by_Blackstock,__3688748_(z-lib.org).pdf>
* [Acoustics\_by\_Leo\_L.\_Beranek)\_3493595\_(z-lib.org).pdf (zlibcdn.com)](https://pdf.zlibcdn.com/dtoken/07d965d6fc795911b540d185ca03f960/Acoustics_by_Leo_L._Beranek)_3493595_(z-lib.org).pdf)
* [Acoustics\_an\_introduction\_to\_its\_physical\_princip\_6041798\_(z-lib.org).pdf (zlibcdn.com)](https://pdf.zlibcdn.com/dtoken/fcf9ddd212cef74819adc28f7bf4c5ec/Acoustics_an_introduction_to_its_physical_princip_6041798_(z-lib.org).pdf)

# Websites

* [Reflection of Waves - GeeksforGeeks](https://www.geeksforgeeks.org/reflection-of-waves/)
* [Chapter\_6a.doc (illinois.edu)](https://jontalle.web.engr.illinois.edu/uploads/473.F18/Lectures/Chapter_6a.pdf)
* [Refraction of Sound Waves (psu.edu)](https://www.acs.psu.edu/drussell/Demos/refract/refract.html)
* [Reflection of Wave Pulses from Boundaries (psu.edu)](https://www.acs.psu.edu/drussell/demos/reflect/reflect.html)

# Reflection of acoustic waves at a water–sediment interface

* [Reflection of acoustic waves at a water–sediment interface: The Journal of the Acoustical Society of America: Vol 70, No 1 (scitation.org)](https://asa.scitation.org/doi/10.1121/1.386692)
* Reflection and refraction of plane acoustic waves are studied for the case where the sediment is modelled as a porous viscoelastic medium. The model is based on the classical work of Biot which predicts that three different kinds of attenuating body wave may propagate in the sediment. As a consequence, when homogeneous plane waves in water are incident to a water–sediment interface, three nonhomogeneous waves are generated in the sediment. In these waves the direction of phase propagation and the direction of maximum attenuation are not the same and particle motion follows an elliptic path. Moreover, the velocity and attenuation of the refracted waves become dependent on the angle of incidence and no ’’critical’’ angle occurs. Numerical examples show that in some cases the reflectivity of a porous viscoelastic model differs significantly from the case where the sediment is modelled as a viscoelastic solid with constant complex modulus. Finally, because of the frequency dependence of reflectivity in the porous model, it is found to act as a filter with respect to broadband energy.

# On the Reflection of Acoustic Waves on a Rough Surface

* [On the Reflection of Acoustic Waves on a Rough Surface: The Journal of the Acoustical Society of America: Vol 30, No 5 (scitation.org)](https://asa.scitation.org/doi/10.1121/1.1909658)

# Reflection of plane acoustic waves from a layer of varying density

* [Reflection of plane acoustic waves from a layer of varying density: The Journal of the Acoustical Society of America: Vol 87, No 4 (scitation.org)](https://asa.scitation.org/doi/abs/10.1121/1.399455)
* Analytical solutions of the Helmholtz equation are derived for the reflection of plane acoustic waves from a layer of varying density between two homogeneous media. The solutions show that the reflection coefficient is dependent on dimensionless vertical wavenumber and on the shape of the density profile in the intermediate layer. The most general case considered is one in which a step change in density is followed by a continuously varying density profile in a transition layer of finite thickness. Results are presented illustrating the dependence of reflection coefficient on wavenumber and on the structure of the transition layer. It is demonstrated that, in the limit of very low wavenumber or grazing incidence, the reflection coefficient tends to the Rayleigh coefficient appropriate to the overall density change between upper and lower media, while, in the high wavenumber limit, the reflection is given by the Rayleigh coefficient for the step change only.

# Reflection of Acoustic Waves from an Inhomogeneous Fluid Medium

* [Reflection of Acoustic Waves from an Inhomogeneous Fluid Medium. I: The Journal of the Acoustical Society of America: Vol 25, No 6 (scitation.org)](https://asa.scitation.org/doi/abs/10.1121/1.1907242)
* The reflection coefficient for plane waves incident obliquely on a medium in which the velocity decreases exponentially is computed approximately using the WKB method and compared with a computation from the rigorous solution. The approximate reflection coefficient 1/[16(ω/g)2 cos6θ+1]1/[16(ω/g)2 cos6θ+1] where ω is the angular frequency, g is the velocity gradient at the start of the exponential decrease, and θ the angle of incidence is within 0.05 percent of the rigorous value for ω/g ⩾ 5 at normal incidence and within 5 percent of the rigorous value for ω/g ⩾ 20 for angles of incidence up to about 45°.