



Abstract

Vortrag im Mathematischen Kolloquium am 24.10.2017:

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Analytical solutions for 3D Helmholtz in the problems of shallow-water acoustics

The talk idea is as follows: there are many numerical methods for the solution of 3D problems. However, sometimes 10 methods produce 10 different solutions for the same 3D propagation problem (such thing happened at one of ASA workshops on 3D). Therefore some pool of 3D solutions should be established in order to verify the numerics of all sorts. There are however surprisingly few analytical solutions of this sort. The talk provides an overview of such solutions that cover the problems of propagation in penetrable wedge, the canyon problem, the waveguide with variable bottom slope and the whispering undersea galleries. The talk includes (but not restricted to) our results obtained with Fred Sturm and our recent study with Boris Katsnelson (Haifa, Israel).