

## **Diffraction in Lossy Media**

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In this presentation ray methods are used to calculate the high frequency scattering from an object buried in a lossy half space. In general this could be a quite difficult problem, because ray paths connecting real source and observation points in a lossy medium involve complex values of the space coordinates, i.e., complex rays. However in the problem described here, the solution can be obtained using real rays. Furthermore, the solution naturally separates into the solution for the field scattered from the same object located in a lossy medium of infinite extent plus the field of rays introduced by the interface between air and the lossy half space. Interestingly enough the same type of separation occurs when treating the problem by a low frequency approach such as the moment method. The fields scattered through the interface into air as well as the fields scattered into the lossy half space are of interest. In the latter case, the high frequency scattered field is composed of the field of a ray directly radiated from the scatterer plus the field of a ray reflected from the interface together with a lateral wave field guided by the interface.