

Abstract:

In hydrocarbon exploration the most common method to locate oil and gas reservoirs is the reflection seismology (or 'seismic') method, where one tries to estimate the properties of the Earth's subsurface from reflected seismic waves recorded on the surface. To obtain the true subsurface structure it is necessary to know the propagation velocity of seismic waves. One of the widely used methods here is the reflection tomography, where one tries to determine a subsurface velocity model minimizing the difference between synthetic (or model) and true (or picked) travel-times. Mathematically this is an ill-posed inverse problem.

In this talk I will give a brief introduction to a theory of seismic reflection tomography and discuss some practical aspects and problems of its implementation.