

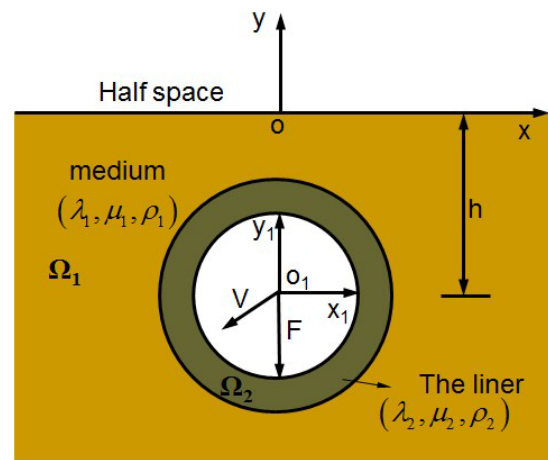


Dynamics of the underground railway lines

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Description:

The construction of underground railway lines is developing very quickly to release the traffic pressure. Therefore it is necessary to study the dynamic behavior of underground railways to ensure the passengers' safety and optimize the design of the actual construction. To this end, an advanced model will be developed which will include all relevant components of the train-rail-tunnel-soil system. Valvilov-Cherenkov radiation play an important role at the introduction of high speed trains in certain parts where the subsoil is soft. The wave generated by a supercritically moving train can destabilize the train vibrations. Therefore, it is of great importance to study the dynamics of vibration and the stability of high speed trains.



Goal:

The primary goal of this PhD study is to model the dynamics and stability of underground high-speed railway lines. The focus of this PhD study is placed on the stability of a train at high speeds of motion taking into account the following, potentially, destabilizing factors: soft soil, axial compression of the rails caused by temperature and by the locomotive wheels, out-of straightness of the rails and earthquakes.

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