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Dynamic Behaviours of Soils and Rocks in a Wide Pressure Range

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Investigations of dynamic compressibility of soils were performed by two various experimental methods: the modified Kolsky method was used at strain rates about 103 s^{-1} and pressure up to 300 MPa, and the plane-wave shock testing was at higher strain rates and pressure up to 2GPa. Soils' specimens, including dry and wet sands, were placed in a steel jacket equipped additionally by strain gauges to test on split Hopkinson pressure bar (SHPB). As in these above methods deformation state is the same, then it is able to construct total stress-strain curves of dynamic deformation of soft soils in uniaxial strain condition in a wide range of pressure. Besides above testing, there are presented experimental analysis for two rocks' materials, i. e. the gabbro-diabas granite and two kinds of marble tested in compression as well as in tension (splitting tests) by SHPB at high strain rate about 103 s^{-1}.

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