

## **Abstract**

Cyclic soil behavior is nowadays a popular subject of studies. One of its applications is geotechnical design and numerical simulation of foundation of offshore wind turbines. This master thesis is a part of a wider scientific research on cyclic soil behavior done at Charles University. One of the goals of this thesis is to define reference sand material, which could be used for another scientific projects. Therefore it was necessary to perform sufficient number of laboratory tests to create a representative volume of experimental data. Results and problems are commented in this thesis. The obtained experimental data are then used for calibration of hypoplastic model for sands. Numerical back analysis of cyclic loading of pile is also part of this work, where experimental data of pile cyclic loading is taken from the literature.