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## LiDar technology device application in hydraulic laboratory practice

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### ABSTRACT

LiDAR application in laboratory flume bed shape investigation is based on the grounds of introducing the autonomic measuring modules, containing laser scanner device, motor, steering microcomputer and inner and outer prefabricated elements (Fig. 1). Present device is placed above the sandy bed on dedicated controllable arrangement of guideways, describes the landform as a cloud of coordinates.



Fig. 1. Prototype A2 during measurement performance

The result of performed experiment was to obtain a variety of point clouds (described with  $x$ ,  $y$ ,  $z$  coordinates), that recount bed shape before and after local scour formation during more than thirty measurement series with varying hydraulic conditions. Objects of the study were basic geometry properties of the scour hole and its volume. The measurement with laser scanner technology application allowed for obtaining much more accurate results in shorter time, comparison to disc probe survey, and also relatively fast conversion of numerical data into graphics. The adopted grid is characterized by significant density, which – in connection with meaningfully high accuracy – allows very precise surface description. Bed shape can be presented in numerical or graphical form. It must be pointed out that disc probe method application would never give such accuracy as in the case of introducing laser scanning technology in similar studies.