Name of the organization
Karlsruher Institut für Technologie (KIT)

Name of the infrastructure / laboratory
PROFLAM I & II

Address and country of the infrastructure / laboratory
Karlsruher Institut für Technologie (KIT), Campus Nord, Hermann-von-Helmholtz-Platz 1 - 76344 Eggenstein-Leopoldshafen, Germany

Person responsible of the access / Contact person
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Main field of activity of the infrastructure / laboratory
- *Hydrogen-metal dust safety, storages*

Short description of the infrastructure / laboratory
The basic combustion properties of hybrid hydrogen/dust systems may be assessed in the PROFLAM facility. It consists of two combustion tubes, 15 cm and 35 cm (PROFLAM II) of inner diameter. PROFLAM I has three 3-m long sections; each section has 45 measuring ports arranged in nine equidistant cross-sections along the tube axis. Dust dispersion system consists of three independent sub-systems each for one tube section. The tube is rated to 10 bar. PROFLAM II has four 3-m long sections, each section has 28 measuring ports arranged in 8 equidistant cross-sections along the tube axis. Dust dispersion system is the same for all 4 variants of the tube layouts. The tube is rated to 250 bar. Mixtures can be ignited either by strong chemical igniters or by weak electric spark of variable energies, frequencies, and duration. The facility is instrumented with fast pressure measurements (to 100 kHz or higher), thermocouples and photodiodes used as flame-front-arrival gauges, a mass-spectrometer with up to 15 sampling ports arranged along the tube axes, and appropriate data acquisition.

Main research area(s) of the infrastructure / laboratory
Hydrogen-dust combustion, dust mobilization