



### Name of the organization

University of Perugia

### Name of the infrastructure / laboratory

Fuel Cell Laboratory (CDS, SOFC, MCFC test benches)

### Address and country of the infrastructure / laboratory

Via G. Duranti 67, 06125 Perugia, Italy

### Person responsible of the access / Contact person

Umberto Desideri

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### Main field of activity of the infrastructure / laboratory

► Stationary and Fuel Cells for Power and Heat Generation

### Short description of the infrastructure / laboratory

The FCLab is 152 square metres. It is equipped with plants of gas distribution, facilities of data control and saving, gas chromatography and systems for the measurement of concentration, impedance analyzer, gas and H<sub>2</sub>O controllers, temperature control systems, current control systems, systems of pressure measurement, desulphurization system. The Lab has developed and used test benches for single cell testing and small (1kW and 2.5kWe) fuel cell stacks. Up to date, FCLab is provided with: one 2.5 KWe SOFC test bench; one 300 W SOFC test bench; one 3 W SOFC test bench; one 16 W SOFC test bench; one 11 W MCFC test bench; one 300 Kwe MCFC test bench. FC Lab is also provided with desulphurization test bench including: gas distribution system made up of Teflon pipes and Sulfinert T junctions; analysis section of the outlet gas; data acquisition system. The whole system is wrapped in a rack and connected to an extractor hood.

### Main research area(s) of the infrastructure / laboratory

SOFC/MCFC POWER PRODUCTION (Fuel processing, Clean-up, Performances, System integration); CARBON CAPTURE;  $\mu$ CHP

### Instruments and tools available for the above mentioned research

Each test rig is fed with hydrogen, nitrogen, carbon monoxide, carbon dioxide and air. A control system measures and controls gas flows, temperature, current and voltages. System modeling is developed via Aspen Tech and Cycle Tempo.

