Supplementary Material (ESI) for *Energy & Environmental Science*

A Fuel Cell that Runs on Water and Air

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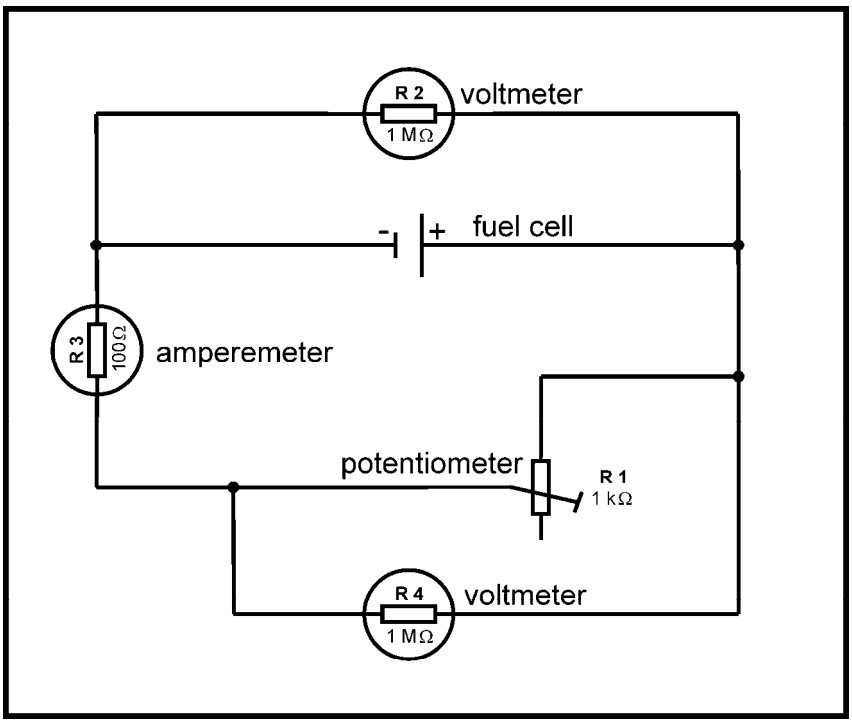
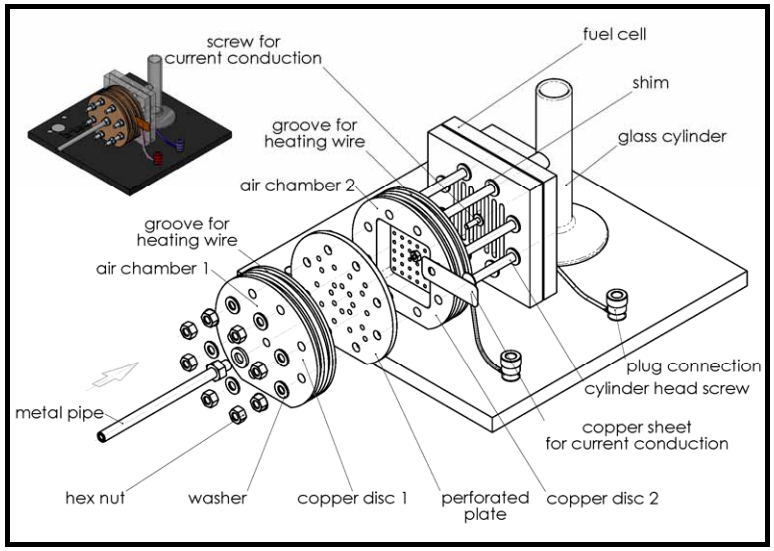
Supplementary Information



Scheme of the experimental setup: Internal resistances of the instruments are indicated in the scheme below the resistance symbols. The potentiometer represents the load resistance which can be varied between 0 and 1 kΩ. The current, the cell potential and the voltage at the adjustable resistance were recorded during the measurements. The performance curves given refer to the potential at the potentiometer and the overall current in the circuit.



Expanded view of the temperature controlled flow adapter which was mounted at the cathode. This permits the electrode to be supplied with a known flow of synthetic air at a defined temperature. The gas exiting from the metal tube is swirled by the two air chambers and the perforated plate, so that the electrode is supplied evenly over the whole area. The conducting contact at the cathode is made by a thin copper sheet. Aqueous solutions at different pH values are provided to the anode in a glass cylinder.