

Electronic Supplementary Information

The device used during the measurements consists of (Fig. 1S):

- two copper electrodes (diameter of 4.5 mm), each covered with Pt disk (thickness 0.5 mm) of the same diameter;
- stabilized power supplies:
 - INCO Z-3020 - DC voltage source, adjustable between 0.1-30V under load current 0-20 A;
 - INCO Z-5001 - DC voltage source, adjustable between 0.1-500V under load current 0-1 A;
- UV-VIS NIR Spectrometer model 2000 (Ocean Optics, USA), computer controlled (PC1);
- a digital camera Fujifilm FinePix S2100, 10 Mpix and a digital video-recorder Lark FreeCam 1.0, video resolution 1280x720 (30 fps), photo 5 Mpix, operating also in NIR;
- precision standard resistor R: 0,001 Ω ;
- voltmeter (V1) Metrahit Energy Multimeter, computer controlled (PC2);
- voltmeter (V2) Brymen digital multimeter, model BM859s, computer controlled (PC2);

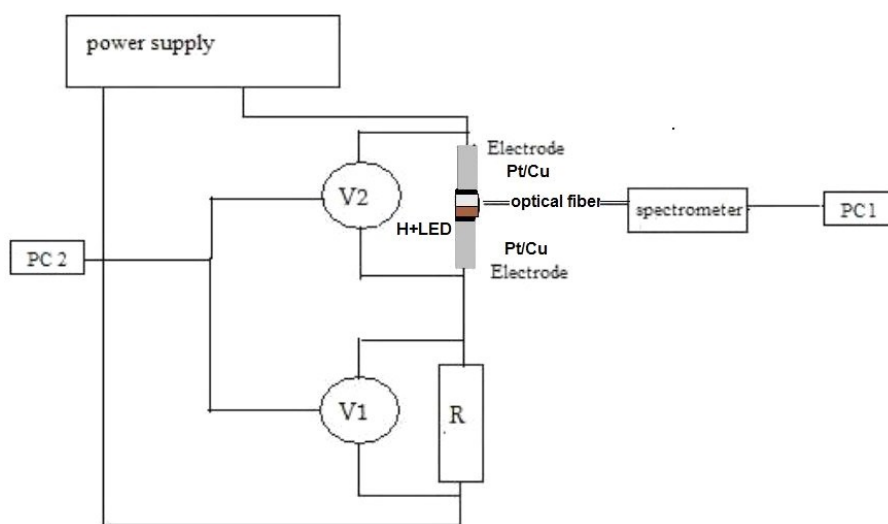


Fig. 1S. The experimental setup - a scheme.

The general procedure for measurements consists of the following stages:

- 1) Preparation H+LED: deposition wet layers of proton donor and proton acceptor in to the protecting glass tube, between two Pt/copper electrodes of the measuring holder.
- 2) Connect the electrodes to the power supply (adjustable between 0.1-30 V or 0.1-500 V).
- 3) Connect the voltmeters V1, V2 and turn on the computer PC2 to register the voltage and the current. Save the data.
- 4) Connect the optical fiber and turn on the spectrometer using PC1 and then the camera – to record the spectra and emission (as a film).
- 5) Registration the spectra with time resolution of 1 s and saving the data.

The measurements were carried out in darkness at room temperature.

Measurements of the current and voltage, the emission spectra and registration the film with digital camera, were performed automatically within duration the experiment.

The period between each experiment was approximately 30 minutes due to the time necessary to change the layers and clean the electrodes.