

INTERNATIONAL WORKSHOP ON DEGRADATION ISSUES OF FUEL CELLS

**Second Announcement
and Call for Abstracts**



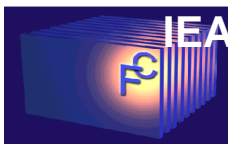
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**Location: Hotel CRETA Maris,
Heraklion, Crete, Greece**

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**DEGRADATION OF ELECTRODEPOSITED CATALYSTS FOR POLYMER
ELECTROLYTE FUEL CELLS**

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In this work platinum nanoparticles were deposited onto conventional gas diffusion electrodes by electrochemical deposition in order to achieve high electrocatalyst utilization.

In particular, a solution containing H_2PtCl_6 (ECPA) 20mM in 1M H_2SO_4 at room temperature is used for galvanostatic electrodeposition at constant (GED) and pulsed current (PED) to obtain an homogeneous catalytic layer: in both cases a reproducible reduction process of the noble metal was carried out.

Moreover, this method allow to prepare platinum catalyst characterized by spherical particles with a fine nanostructure (2-4 nm) on the surface which shows good electrochemical performances.

Chemical analysis, cyclic voltammetry (CV) and FEG-SEM technique are used to determine electrochemical characteristics of Pt deposit and the influence of electrodeposition method on the nano-morphology. Electrocatalytic performances were investigated by methanol oxidation reaction (MOR) in H_2SO_4 .

Ageing studies were lead by CV and results were characterized by means FEG-SEM; in addition long-term tests were carried out on our deposits in a polymer electrolyte fuel cell supplied with humidified hydrogen/air.