

## Electrochemical analysis of a micro fuel cell processed on a silicon substrate

*A Martinent, D Marsacq, JY Laurent,  
C Nayoze, C Roux  
Atomic Energy Commission – DTEN – 17  
rue des Martyrs – 38054 Grenoble – France  
martinentau@chartreuse.cea.fr,  
christel.roux@cea.fr*

### Abstract :

The Atomic Energy Commission of France has initiated researches concerning micro fuel cell about three years ago. Present applications in portable power include the full range of electronics devices, such as cell phones, laptop computers, video camcorders and radios.

Micro fuel cell components have been realized on a silicon substrate using thin layer technology. A three-electrode home-designed system allowed to characterize each component of the system and to get electrochemical performances of each electrode. Tests have been made under hydrogen and air at ambient conditions.

Polarization curves (Fig. 1) and electrochemical impedance spectra are showed and discussed in this paper.

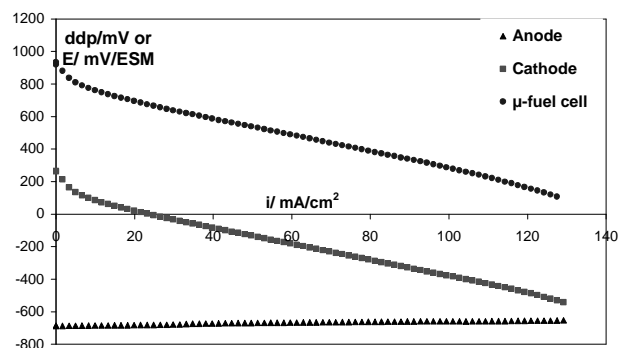


Fig. 1. Polarization curves of the micro fuel cell and  $i$ - $E$  curves of each electrode.