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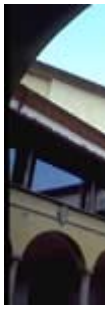
Institute of Chemistry of OrganoMetallic Compounds, (ICCOM-CNR), Institute of Science and Molecular Technologies (ISTM-CNR) and Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM)

Correspondence:
Dr. Giuliano Giambastiani
XII ISHHC Secretary
ICCOM CNR
Florence Research Area,
Via Madonna del Piano
50019 Sesto Fiorentino
Florence, Italy

E-mail: ishhc12@iccom.cnr.it
Fax +39 055 5225203
phone +39 055 5225288
http://www.ishhc12.it
Chairman phone +39 055 5225280

There are many reasons to organize the 12th international edition of ISHHC in Flor international fame of Florence as an art city, the worldwide interest in its artistic he cultural traditions, its geographic position, the famous "green" region of Tuscany.

In addition, Florence is the startin trip to several beautiful surroundi San Gimignano, just to say but a f The last International Advisory E Evanston (USA) decided that the was the best time for ISHHC XII venue, which will be organized ur of the Italian National Researcl through the two institutes ICCOM CNR, the Italian Society of C Divisione di Chimica Industria Interdivisionale di Catalisi (GIC) Interuniversitario Nazionale per Tecnologia dei Materiali" (INSTM),



the "Ente Cassa di Risparmio di Firenze" (EnteCRF) and the “Consorzio Interuniversitario nazionale per la Reattività Chimica e la Catalisi” (CIRCC), will be located in the Congress Centre of the European University Institute on the hill of Fiesole in the old monastery of the Badia Fiesolana. This is one of the most evocative places of the near periphery of Florence and is easily reachable by bus from the city centre. The meeting venue represents an example of early Renaissance architecture with an elegant cloister.

Several hotels have been reserved for the ISHHC participants in the historical center of Florence. In addition, Florence hosts an important University and many renowned research centers in the new University and CNR Campus (www.area.fi.cnr.it).

CHIMET® ELECTROCATALYSTS FOR POLYMER ELECTROLYTE FUEL CELL

A. Pozio* , M. De Francesco*, J. Wu*, A. Cemmi*,
M. Cerboni°, R. Pellegrini°, M. Graziani°

**ENEA, C.R. Casaccia, Via Anguillarese 301, 00060, S. Maria di Galeria (Rome), Italy.*
alfonso.pozio@casaccia.enea.it
°CHIMET S.p.A., Via di Pescaiola 74, 52040 Viciomaggio (Arezzo), Italy.

Platinum on carbon was prepared from carbonaceous material, H_2PtCl_6 and sodium formiate as reducing agent [1] while Pt-Ru/C was prepared always on carbon support but using $Pt(NH_3)_4Cl_2/RuNO(NO_3)_x(OH)_y$ and borohydride as reducing agents [2]. In both cases a very fast reduction process of the metal was used by means of a proprietary method based on ENEA[1] technology. Small and homogeneously dispersed catalyst particles were obtained. XRD and electrochemical measurements show that the performance of catalysts prepared was similar to those of commercial one but with increased stability. In particular long-term test carried out on Pt/C in a polymer electrolyte fuel cell for thousands of hours showed very good performance. The proprietary method allows a very fast reduction kinetic of metal ions, with reduced thermal and diffusive gradients, and permits the production of more homogeneous catalysts.

The Pt-Ru catalyst produced is a real 50:50 at.% alloy with much more crystalline phase with respect to commercial sample. The electrochemical performances in hydrogen or methanol and the CO tolerance are similar to those of commercial catalyst [3]. In addition, the new catalyst is much more stable in ethanol and methanol even if heated or ultrasonicated.

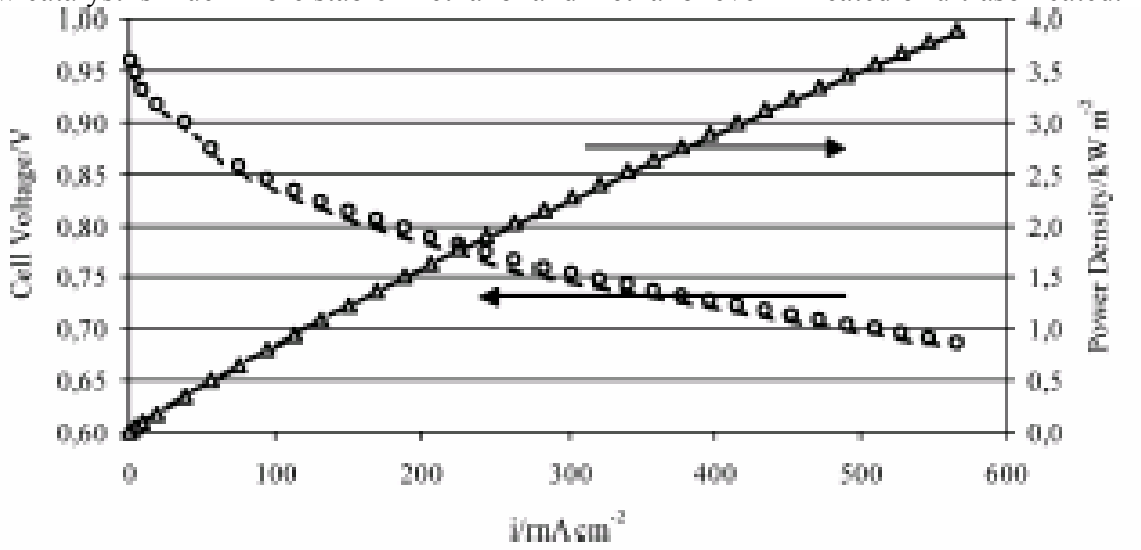


Fig. 1 - Cell voltage and power density versus current density of cells with the Chimet (○ and Δ) and commercial (- - - and —) Pt–Ru/C catalysts at the anode side, T_{cell}=75°C under H_2 and O_2 streams (1.4/1.4 abs. bar)

References:

1) A. Pozio, M. De Francesco, A. Cemmi, F. Cardellini, L. Giorgi, *J. Power Source,* **105**, (2002), 13-19.
2) A. Pozio, R.F. Silva, M. De Francesco, F. Cardellini, L. Giorgi, *Electrochim. Acta*, **48/11**, (2003), 1625
3) R.F. Silva, M. De Francesco, L. Giorgi, M.C. Campa, F. Cardellini, A.Pozio, *J. Solid State Electr.*, **8/(8**, (2004), 544-549.

[1] ENEA is the Italian National Agency for New Technologies, Energy and the Environment