# EUROPEAN FORUM ON ELECTROCHEMICAL PROMOTION OF CATALYSIS (EFEPOC)
# MSCF-CT-2006-046201
# Marie Curie Conferences and Training Courses

## CALL FOR REGISTRATION

This project aims at training young researchers to a new speciality: the Electrochemical Promotion of Catalysis [EPOC] or Non-faradaic Electrochemical Promotion of Catalytic Activity [NEMCA] effect is an innovative concept which can be used to modify both the activity and the selectivity of a catalyst. The multi-disciplinary skills required to broaden the exploitation of EPOC and advance successful concepts to the process and/or device proof-of-concept stage are available in only a few research organizations and industrial companies. The aims of the European Forum on Electrochemical Promotion of Catalysis [EFEPOC] are:

**(i)** to train young European researchers (master and PhD students, post-doctoral scientists) to the multidisciplinary field of EPOC and

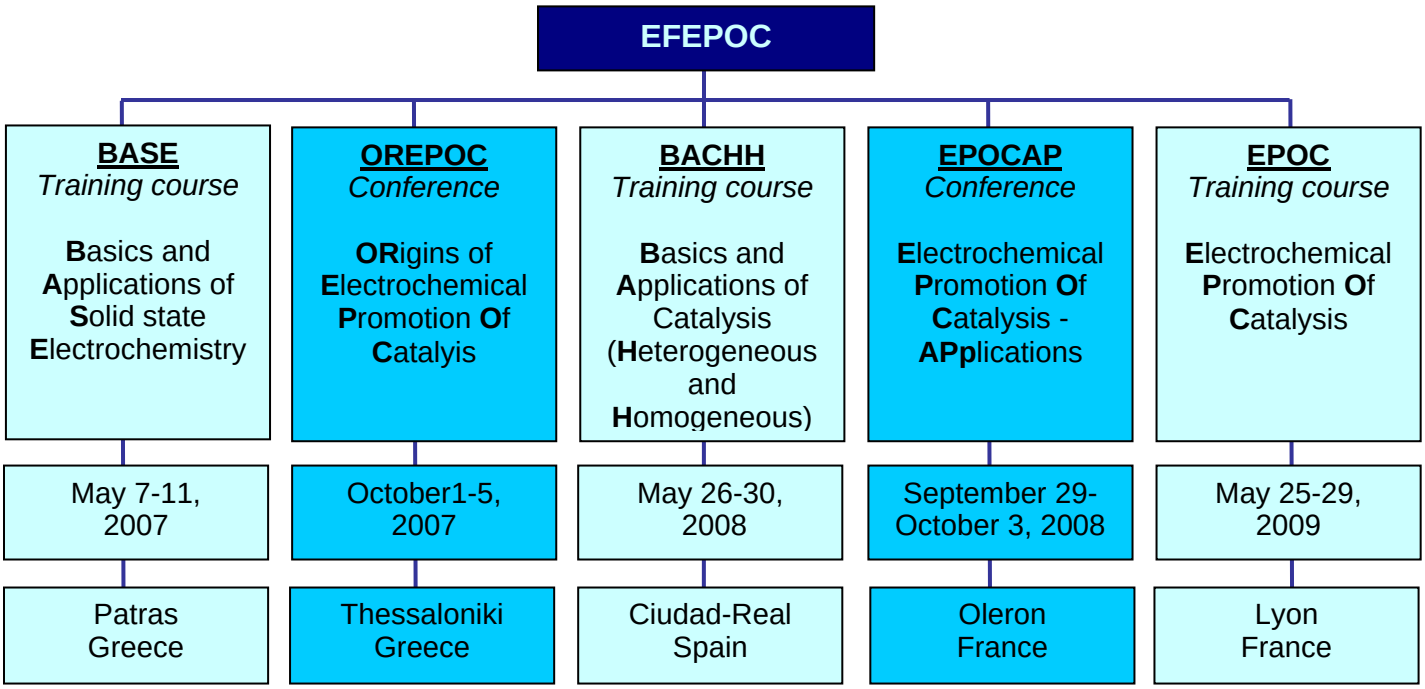
**(ii)** to better structure and strengthen the EPOC European community. The objective is to strengthen the Europe leadership by defragmenting the European resources: organisation of scientific exchanges, common publication and experiments, congress organisation, harmonization of methodology, setting up the European projects through the FP7.

**EFEPOC** is composed of two series of event over the period 2007-2009:

- coherent series of three training courses entitled **"from solid state electrochemistry to heterogeneous catalysis"** during which young researchers will acquire fundamental and practical knowledge, necessary for mastering all aspects of the EPOC field. By training these young scientists, the schools will ensure the dissemination of top-quality science, and will promote the start of the scientific careers of future leaders in the field,
- Two conferences which will cover both **theoretical** and **practical** aspects of EPOC as well as the interactions of EPOC with the catalysis and electrochemistry community.

**Organized by**

Universite Claude Bernard, Lyon, France
University of Patras, Greece
Chemical Process Engineering Research Institute/Centre for Research and Technology Hellas, Thessaloniki, Greece
Universidad de Castilla la Mancha, Ciudad-Real, Spain



**Training Courses Series :**

This series aims to give basic and essential knowledge necessary for well understand and master all the scientific and technological aspects of the electrochemical promotion of catalysis. The idea is to induce high-top level young researchers in this field and to generate a strong and unified European community. The EPOC field requires a multidisciplinary approach as it necessitates skills in catalysis, solid state electrochemistry, physical chemistry, environmental chemistry, surface science and material science. The series of 3 schools will give to the young participants all these skill over a period of 3 years (one training course per year). This duration was selected because it is particularly adapted to PhD students.

Each training course will only welcome 15 participants. The aim is to immerse these few number of young researchers in the vicinity of a research laboratory in order to favour the contact between young researchers and more established researchers. Each school will include both theoretical and practical courses. The teaching schedule will be divided into two main parts:

- 4 mornings (8 lecturers of two hours) devoted to theoretical courses,
- Followed by 4 afternoons devoted to corresponded practical courses.

The selected key topics and scientific issues will be introduced and taught by keynote speakers from internationally renowned research institutes at the forefront of EPOC. Practical courses are predominant in the success of the training. At least, four hands-on experiences will be offered to the young researchers by small group of 3 or 4 participants. During these practical trainings, the communication between leading scientists and young researchers will be promoted and exalted. The idea is that young participants could benefit from the experience of the scientific leaders of Europe from universities and industries.

## 1st Training course
## Basics and Applications of Solid state Electrochemistry (BASE)
## Patras, GREECE
## May 7-11, 2007

BASE will be focused on electrochemical mechanisms, processes and reactors which are important in the study and exploitation of EPOC phenomena. BASE will also explore the aspect of physicochemical characterizations of electrodes. BASE knowledge is essential in order to well understand EPOC. This school will be, particularly, adapted to young researchers who never had a formal training in solid state electrochemistry during their studies.

**Theoretical programme of the courses:**

- Ionic conduction in solids
- Mechanism of conduction
- Solid electrolytes
- Kinetic of electrode reactions
- Electrochemical double layer
- Electrochemical techniques (i.e. cyclic voltammetry, AC impedance spectroscopy)
- Surface science techniques (i.e. scanning tunnelling spectroscopy (STM)
- Electrochemical reactors
- Characterization techniques for electrode applications in: sensors, fuel cells and electropromoted reactors.

**Practical programme of the courses:**

- Conductivity measurements on solid electrolytes
- EMF measurements in PEM fuel cells
- Temperature programmed desorption (TPD)
- X-ray photoelectron spectroscopy (XPS)
- Cyclic voltammetry
- Kelvin probe
- Single cell reactor, Monolithic Electropromoted Reactor (MEPR)

## IMPORTANT INFORMATION

All correspondence regarding this 1st TRAINING COURSE BASE should be made to:

Dr. Susanne Brosda
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## REGISTRATION/APPLICATION

The applicant should provide in electronic form his/her CV, a recommendation letter and a short motivation letter and should fill out the application file provided by the EFEPOC platform (on-line subscription for potential candidates at http://www.ezus-lyon1.fr/Efepoc)

## DEADLINES

Deadline for application to the 1st Training Course BASE: **15th of March, 2007**
Participant's notification: **until 26th of March, 2007**

## REIMBURSEMENT/ELIGIBLE PARTICIPANTS

The selected trainees will receive a lump payment for their accommodation from Sunday, 6th to Saturday,12th 2007, in the Porto Rio Hotel, in Rio, Patras, in double rooms at the beginning of the event. Coffee breaks and Lunch will be offered for free to all participants. They will receive a second lump payment for travel expenses up to a total of € 500 and calculated from the travel distance.

## REGISTRATION FEES

The training fee, listed below, entitle participants to attend the theoretical and practical courses and to receive a copy of the documentation. Fees also include provision for the welcome reception, morning and afternoon refreshments as well as an excursion and the dinner on Wednesday, May 9, 2007.

**Registration fees for regular participants**

Registration in advance **€ 50**

## CANCELLATION

Notification of cancellation must be sent in writing to the 1st Training course organizer.

## GENERAL INFORMATION

### Time and place

The 1st Training Course Base will start with a Welcome Reception on Sunday, May 6, 2007 and will close on Friday evening, May 11, 2007.

**TENTATIVE TECHNICAL PROGRAM**

# Training Course
# Basics and Applications of Solid State Electrochemistry (BASE)
# May 7-11, 2007, University of Patras, Greece

**Monday, 7.5.2007:** ***Ionic conduction in solids, mechanism of conduction***

9-11 J. Irvine, University of St. Andrews, Scotland
11-13 I. Riess, Technion, Haifa, Israel

15-19 Practical course: Conductivity measurements, S. Brosda

**Thursday, 8.5.2007:** ***Thermodynamics and kinetics of solid electrolyte cells***

9-11 C.G. Vayenas, University of Patras, Greece
11-13 P. Vernoux, University Claude Bernard, Lyon, France

15-19 Practical course: Current-voltage measurements in PEM fuel cells, A. Katsaounis

**Wednesday, 9.5.2007:** ***Experimental techniques***

9-11 S. Neophytides, ICEHT/FORTH Patras, Greece
11-13 D. Tsiplakides, CPERI Thessaloniki, Greece

15-19 Excursion and Dinner

**Thursday, 10.5.2007:** ***Characterization techniques for electrode applications in sensors, fuel cells and electropromoted reactors***

9-11 J. Janek, Justus-Liebig-University, Giessen, Germany
11-13 A. Katsaounis, University of Chania, Greece

15-19 Practical course: Cyclic voltammetry, Kelvin probe, D. Tsiplakides
TPD, XPS, S. Neophytides

**Friday, 11.5.2007:** ***Electrochemical reactors***

9-11 G. Foti, EPFL Lausanne, Switzerland
11-13 S. Bebelis, University of Patras, Greece

15-19 Practical course: Monolithic Electropromoted Reactor (MEPR), A. Hammad

## THE TRAINING COURSE PLACE AT A GLANCE

Patras is the capital city of the Prefecture of Achaia and of the Region of Western Greece. It is located in the NW Peloponesse and has a population of a quarter of a million. Patras is a major harbor and it functions as the main gateway for Greece to Italy and Western Europe. With over 50 sailings to Italy per week nearly all the trade between Greece and the rest of the EU goes through Patras. It is a dynamic and attractive city in which to live day-to-day life of modern Greece, where archaeological sites are blended harmoniously with the contemporary and lively rhythms.

The city's history goes back to prehistoric times and the Mycenaean civilization. The city was created with the union of three agricultural districts (Aroe, Anthia and Messatis) and was named after Patreas, leader of the Achaians who settled in the area during the 12th century BC. In the 3rd century BC the Achaians formed the famous Achaian Confederation, which brought the city to prominence. During the Roman times the city flourished, as it won the favor of many Roman emperors and became a cosmopolitan centre. In the 1st century AD Saint Andrew lived, taught and was martyred in the city and since then he is considered to be its Patron Saint. During the 19th and 20th century, Patras became an important commercial and industrial centre and the main trade centre between Greece and Western Europe.

Today the city of Patras is an important cultural centre. The surrounding region is an important agricultural area for Greece with extensive production of citrus fruit, potatoes and watermelons. The area is also well known for its vineyards with outstanding wines being produced here. The internationally known Achaia-Clauss wine company is based just outside Patras. The city offers a wide variety of cultural and sports opportunities. It is centrally located and provides easy access to some of the most important historical sites of the ancient world. To the south, just over an hour's drive away lies Olympia, the place where the ancient Olympic Games took place. Across the waters of the Corinthian gulf lies Delphi where the Pythia, the prophetess, delivered her oracles in the ancient world. The nearest international airport is located in Athens, which is connected to Patras via frequent express coach and train services (2.5-3 hours).

Approximately 8 km outside the city of Patras, in the area of Rion, is located the University of Patras(www.upatras.gr/index.php/lang=en) which is the third Higher Educational Institution in the country in terms of student number, academic departments and personnel.

## GETTING TO PATRAS

Patras is connected by fast ferry-boats to Italy, specifically to Bari, Brindisi, Ancona and Venetia. The travel time from Ancona is 18-20 hours.

Patras is serviced by the Athens International Airport “Eleftherios Venizelos”. Patras can be reached from Athens using public transport by train or bus. Traveling by bus is faster and is recommended. The train and bus station in Patras are located near the city center by the harbor. It is recommended to hire a taxi to get from the bus or train station to the hotel.

Alternatively one can rent a car or hire a taxi. Car rentals can be made at the airport. The highway connection Athens and Patras accessed easily via the Attica Odos, a three-lane motorway constituting the Athens City Ring Road.
Taking a taxi directly from the airport to Patras in only recommended for groups of 2-3 persons. The price is agreed in advance with the taxi driver and should not exceed € 150.

**Related links**

www.patras.gr