



**Project Acronym :** IDEAL-Cell

**Project Title :** Innovative Dual mEmbrAne fuel cell

**Coordinator :** ARMINES - Association pour la Recherche et le Développement des Méthodes et Processus Industriels, École Nationale Supérieure des Mines de Paris (France)

**Website :** <http://www.ideal-cell.eu/>

## ABSTRACT

IDEAL-Cell proposes to develop a new innovative and competitive concept of a high temperature Fuel Cell, operated in the range 600-700°C, based on the junction between a PCFC anode/electrolyte part and a SOFC electrolyte/cathode, through a mixed H<sub>2</sub> and O<sub>2</sub> conducting porous ceramic membrane. The IDEAL-Cell concept brings a considerable enhancement of the overall system efficiency (fine-tuning of the catalytic properties of the electrode, possibility of applying a pressure on both the electrode sides, more simpler and compact stack-design with less sophisticated interconnects, more efficient pre-heating of gas, simplified heat exchange system for co-generation, availability of high quality pure water for vaporeforming).

This 4-year project, divided in 2 parts, is organized so that the risk is minimized at each step. The first 2 years will focus on the proof of the concept with routine materials; the last 2 years will be dedicated to the development of an optimized short-stack with advanced materials and architecture. The project work programme is based on extensive theory and modelling, material development, testing techniques development, benchmarking and dissemination of the knowledge acquired during the duration of the project. The best European teams have been carefully selected according to their complementary expertises and skills, and so that the type of activities involved (academic research, applied research, materials supply) ensures the success of the IDEAL-Cell project.

## PARTNERS

Association pour la Recherche et le Développement des Méthodes et Processus Industriels – Ecole Nationale Supérieure des Mines de Paris – ARMINES – **France**; Université de Bourgogne (Institut Carnot de Bourgogne) – UB – **France**; National Research Council– CNR – **Italy**; Deutsches Zentrum für Luft- und Raumfahrt e.V. – DLR – **Germany**; Institute of Electrochemistry and Energy Systems– IEES – **Bulgaria**; Marion Technologies – MT – **France**; NAXAGORAS – **France**; University of Science and Technology – AGH – **Poland**; TurboCare – **Italy**.