2012 Award, Spain

Air purifying technology
Ernest Mendoza

Theme
Technological Innovation and sustainable mobility

Air pollutants are a major concern for human health and the environment. Automotive sector is considered to be one of the most anthropogenic contaminant sources. Although several efforts have been done in developing materials capable of eliminating the transport emissions, the biggest challenge still lies in the reduction of the automotive emissions of carbon monoxide (CO) and hydrocarbons (HCs) and particles during the cold start period (few minutes after the engine starts), when actual catalytic converters are not efficient.

Laureate
Air purifying technology

Air purifying technology, awarded in Spain, focuses on creating stable groups containing a few gold atoms, forming a specific configuration of clusters smaller than 1.5 nm. These configurations create high catalytic activity obtained from oxidation reactions at room temperature. Unlike existing technologies, this solution eliminates vehicle emissions right from the engine ignition and offers the automotive manufacturers an easy and a low-cost material to reduce air pollution related to automotive emissions.

This innovative technology proposed by Ernest Mendoza from Goldemar Solutions has many technical advantages over the current available technologies based on platinum. First of all, it allows a total reduction of CO emissions to the environment and a low temperature elimination of HCs and particles. Also, as this product has lower costs of production than existing solutions and can be integrated directly into production lines, no major modifications will be necessary to apply this technology to the automotive industry.

Moreover, air purifying technology has an indirect contribution to social responsibility by reducing dependence on the platinum sector which production is much lower than gold.

Jury

Roberto Sánchez
Assistant general director of entrepreneurial development and competitiveness, development and innovation at the Ministry of Economics and Competitiveness
Javier Jiménez-Leube
Full Professor in the Department of Electronic Technology at Polytechnic University in Madrid
Raimundo Herraiz
General Director of Transport Infrastructures for the City of Madrid
Clara Naví
President of APIA, Association of Journalists in the field of Ecological Information.
José María Villarte
General Director of Innobasque, the Basque Agency for Innovation.
María Luisa Poncela
General Director of Innovation and Competitiveness at the Ministry of Economics.
José Ramón Magarzo
Executive President of Altran Iberia.

Finalists

Intelligent tire
Edgar Fité
The Smart Wheel is a new technology enabling a vehicle's tyre pressure to be maintained at the optimum level. This process helps to save on fuel consumption, reduce greenhouse gas emissions and improve safety.

Mobility and Open Data
Enrique Diego
The idea is to develop an open platform listing all information from the public transport companies and to make them freely accessible to customers at any time, irrespective of the position of each vehicle in circulation.

Direct access design
Raul Juanatey
This project aims to optimise passenger access to double-decker trains and buses. It offers direct access to the upper deck of the train or bus. The access platforms would also be modified and divided into two levels to facilitate access. At busy periods, this system would avoid passengers being blocked in stairwells.

Public car system
William Rendall
SPARK is a public transport system which uses electric cars. The user can borrow a car in one part of the city and leave it in another part. In addition to the design of the electric vehicles, the project represents genuine innovation in the general field of mobility, offering users social and economic advantages.

A-51B
Francisco Sánchez
The A-51B is a disc-shaped aircraft intended for the commercial airline industry and pilotless flights. This aircraft has the following main characteristics and advantages: it is 20% quicker than existing models and consumes 40% less fuel. Finally, it can make 360˚ and 90˚ turns.