

INSIA, University Institute for Automobile Research (Technical University of Madrid)								
Campus Sur UPM. Carretera de Valencia (A3) km.7 Tel: 0034 91 336 53 00 http://insia-upm.es/	28031 Madrid. ESPAÑA Fax: 91 336 53 02		Contact: José María López Martínez Director Josemaria.lopez@upm.es					
▲ Description INSIA is a centre dedicated to scientific and technical research, which also perform educational activities and training in specialized areas, while providing technological support to companies and public administrations. The main activities of the Institute are : <ul style="list-style-type: none"> • The Research and Development in the field of road vehicles and their impact on safety and the environment. Currently we are working in eight research areas. • The technological support to companies and governments, providing technology services that materialize in further R & D, testing and certification • Postgraduate training. 								
▲ Main activities and products To develop hybrid propulsion systems with hydrogen-powered fuel cells focused on applications in industrial and special vehicles in order to optimize consumption and reduce pollutant emissions. To develop methodologies to determine emission factors linked to vehicles, propulsion technologies and fuels. Development propulsion systems control-strategies, based on real cycles simulation, to optimize the operation of the vehicles to specific uses. Study and development different alternatives to improve internal combustion engines involving less environmental impact: treatment systems, biofuels, calibration, dual-fuel, etc.								
▲ Related projects								
EPISOL Hybrid fuel cell electric vehicle Duration: 01/2005 - 12/2008 http://insia-upm.es/portfolio-items/proyecto-episol/	SRA lines covered by the project: <table border="1"> <tr> <td>1. Efficient internal combustion engines and alternative fuels</td> <td></td> </tr> <tr> <td>2. Hybridization / electrification of vehicle propulsion and energy management</td> <td>✓</td> </tr> <tr> <td>3. Other propulsion systems based on hydrogen and fuel cell</td> <td>✓</td> </tr> </table>	1. Efficient internal combustion engines and alternative fuels		2. Hybridization / electrification of vehicle propulsion and energy management	✓	3. Other propulsion systems based on hydrogen and fuel cell	✓	Description and objectives: The main objective of this project is to design a lightweight hybrid electric vehicle powered by fuel cells. Develop a methodology for energy management Develop a test methodology for test fuel cell - vehicle Participants: INSIA, CEMUSA Results: A prototype demonstrator.
1. Efficient internal combustion engines and alternative fuels								
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INNEXTRAN Innovative technologies for developing a Plug-in Hybrid Electric Vehicle Budget: 2.023.274,91 € Duration: 7/2012 - 12/2014 Programme: Plan Nacional de Investigación Científica, Desarrollo e Innovación Tecnológica 2008-2011. Subprograma INNPACTO 2011 del Programa Nacional de Cooperación Público-Privada. Cofinanciados por el Fondo Europeo de Desarrollo Regional (FEDER). IPT-2011-1798-370000. http://insia-upm.es/portfolio-items/proyecto-innvextran-2/	SRA lines covered by the project:		Description and objectives: The project objective is the development, testing and integration on a lightweight plugin-hybrid-electric vehicle and the whole range of technologies associated: the chassis and body, energy management and storage, as well as aspects of their environmental impact and safety, to achieve energy efficient and environmentally friendly transport alternative. Participants: INSIA, CETEMEC, MECACONTROL Results: A prototype demonstrator.
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VENTESU Development of Modular and electric vehicle platforms with High Efficiency for Urban Services Duration: 7/2014 - 12/2017 Programme: CDTI. Programa Estratégico de Consorcios de Investigación Empresarial. CIEN.	SRA lines covered by the project:		Description and objectives: The main objective of the project is the definition, design and development of an electric vehicle prototype with batteries and ultra-capacitors, with a wide range extension, pluggable, a self-supporting body and low cabin for the provision of urban services. Participants: FCC, IRIZAR, IVECO, JOFEMAR, JEMA, INSIA, TECNALIA Results: In process.
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ATHEMTO Hybrid/ electric technology application for a military vehicle Budget: 545.883 €	SRA lines covered by the project:		Description and objectives: The main objective of this project is to obtain a military electric -vehicle prototype with range extender. Participants: INSIA, UROVESA
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<p>Duration: 7/2015 - 10/2017</p> <p>Programme: COINCIDENTE. Ministerio de Defensa</p>	<p>3. Other propulsion systems based on hydrogen and fuel cell</p>		<p>Results: In process.</p>
<p>WASTE2FUELS</p> <p>Developing next generation technologies for biofuels and sustainable alternative fuels.</p> <p>Budget: 5.989.738 €</p> <p>Duration: 01/2016 - 12/2018</p> <p>Programme: H2020. LCE11-2015: CALL FOR COMPETITIVE LOW-CARBON ENERGY.</p>	<p>SRA lines covered by the project:</p> <p>1. Efficient internal combustion engines and alternative fuels</p> <p>2. Hybridization / electrification of vehicle propulsion and energy management</p> <p>3. Other propulsion systems based on hydrogen and fuel cell</p>	<p>✓</p>	<p>Description and objectives:</p> <p>WASTE2FUELS aims to develop next generation biofuel technologies capable of converting agrofood waste (AFW) streams into high quality biobutanol. Butanol is one of the most promising biofuels due to its superior fuel properties compared to current main biofuels, bioethanol and biodiesel. In addition to its ability to reduce carbon emissions, its higher energy content (almost 30% more than ethanol), its ability to blend with both gasoline and diesel, its lower risk of separation and corrosion, its resistance to water absorption, allowing it to be transported in pipes and carriers used by gasoline, it offers a very exciting advantage for adoption as engines require almost no modifications to use it.</p> <p>Participants:</p> <p>IRIS (coordinator) + 20 partners (INSIA-UPM is one of them and leads a WP)</p> <p>Results: In process.</p>
<p>ALTAD</p> <p>Innovative technologies for developing a plug-in light electric vehicle</p> <p>Budget: 902.271 €</p> <p>Duration: 2/2014 - 12/2015</p> <p>Programme: EEA-GRANTS. CDTI</p>	<p>SRA lines covered by the project:</p> <p>1. Efficient internal combustion engines and alternative fuels</p> <p>2. Hybridization / electrification of vehicle propulsion and energy management</p> <p>3. Other propulsion systems based on hydrogen and fuel cell</p>	<p>✓</p>	<p>Description and objectives:</p> <p>The aim of ALTAD project is to develop and design a selective catalytic reduction (SCR) system for nitrogen oxides (NOx) of diesel engines, more efficient and environmentally friendly than current systems based on Adblue (removing side pollutants such as ammonia and vanadium).</p> <p>Participants:</p> <p>MECACONTROL, INSIA, CSIC</p> <p>Results:</p> <p>A prototype of an alternative SCR device based on H2 that is obtained from methanol.</p> <p>PATENT: PROCEDIMIENTO PARA LA REDUCCIÓN SELECTIVA DE ÓXIDOS DE NITRÓGENO. Ref: P20153174</p>
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Innovative technologies for developing a plug-in light electric vehicle TRA2014-57520-R Budget: 127.050 € Duration: 1/2015 - 12/2017 Programme: Programa Estatal de I+D+i Orientada a los Retos de la Sociedad	1. Efficient internal combustion engines and alternative fuels		This project presents an energy management method in an electrical hybrid power source for electric bus. This electrical hybrid power source is composed of a fuel cell system as the main source and two energy storage sources, a bank of supercapacitors and a bank of batteries, as the auxiliary source. With this hybridization, the volume and mass of the electrical hybrid power source can be reduced, because the high energy density of battery and high power density of supercapacitor are utilized. Participants: INSIA Results: In process.
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