ITA – Instituto Tecnológico de Aragón

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Organisation profile

ITA (Instituto Tecnológico de Aragón) is a public non-profit Technology Centre whose main objective is to promote competitiveness in the industrial sector and to support the growth of business sectors by means of the development, acquisition, adaptation, transfer and diffusion of innovative technologies in a multi-agent collaborative framework.The Research and Development Area of ITA is specialised in the following research areas:

- Applied Research in Materials: materials modelling for in-service behaviour, development of knowledge-based new materials.
- Applied Research in New Design Technologies: virtual prototyping, functional safety and mechatronics
- Applied Research in Production, Logistics and Expert Systems

Main Green Cars activities: Products and Projects

Research and development activities related to:

Model-based design, control and optimisation of energy flows in new vehicles for efficient management: energy consumption models, energy storage and transference device models, electronic control, duty cycles, management strategies. Modelling of vehicle dynamics, electrical architecture and thermal requirements.

Design and development of new components and systems:

- Power electronics for energy management systems: embedded power electronics, algorithms and control software, communications.
- Mechatronic systems design for keeping comfort, safety and driveability: virtual prototyping and application of multidomain and multiphysic modelling for efficiency, robustness, size, power-class, weight and cost in new electrified components and systems.Functional safety: electromagnetic compatibility, vibrations resistance and product functioning in aggressive environments. Evaluation procedures and tests.
- Design and integration of high dynamic and/or precision test stations including design of algorithms and control software and development of advanced electronic systems for monitoring, automation and communications.

Lightweight and multimaterial structures (steel, Al, composites, polymers):

- Advanced characterization and behaviour modelling, life prediction and materials failure analysis under service conditions.
- Structural calculation and modelling (FEM static/dynamic/crash analysis of metallic and composite vehicle bodies and parts).

Development of light multifunctional materials: modelling, design and manufacture of polymer matrix materials reinforced with nanoparticles.

Cooperative systems for efficient traffic management and safety: embedded systems, real-time communications and software. Usage of de decisional systems in advanced traveller information system, advanced traffic management systems, emergency management system and finally the travel time prediction.

Life Cycle Assessment, Life Cycle Cost and Life Cycle Management