



« **MODELLING AND CONTROL OF VEHICLE PROPULSION SYSTEMS** »

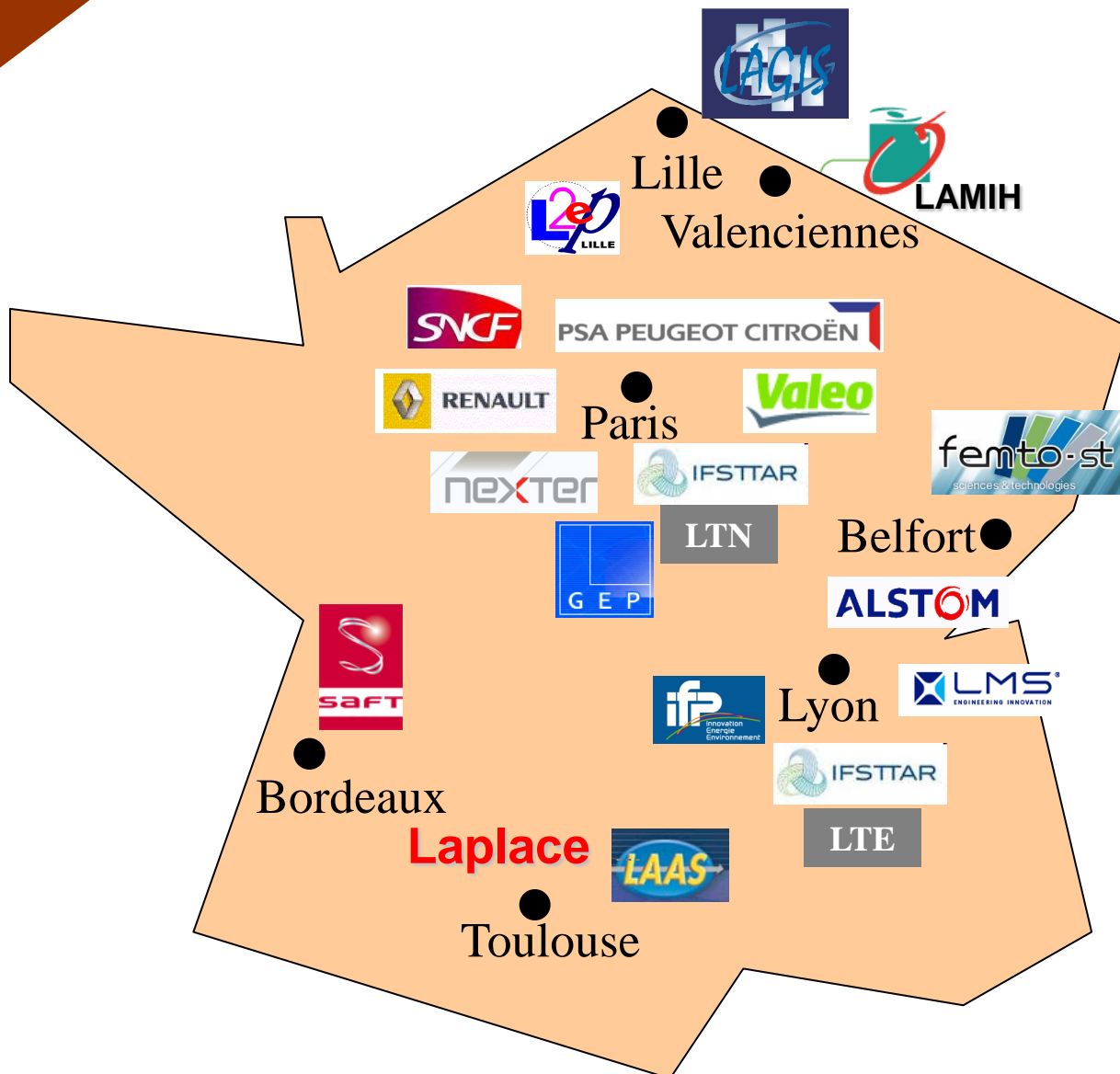
Invited session organized by MEGEVH
(French scientific network on EVs and HEVs)

Co-chairs

Prof. A. BOUSCAYROL (Université Lille1, France)

Prof. J. SANZ (University Carlos III of Madrid, Spain)

- MEGEVH network -



MEGEVH
French network on HEV's

(Energy management of Hybrid Electric Vehicles)

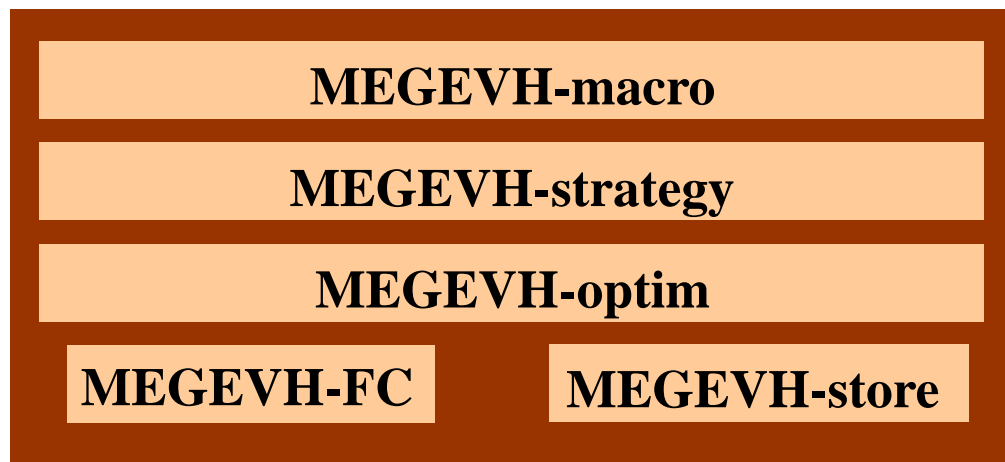
Coordination:
 Prof. A. Bouscayrol

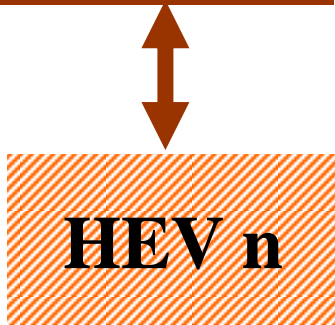
6 projects
 7 PhDs in progress
 6 PhDs defended

8 industrial partners
 10 academic Labs

- MEGEVH philosophy -

Theoretical level

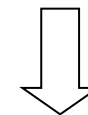




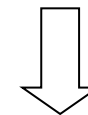
Vehicle level

Development of methodologies of modelling and energy management

independently of the kinds of vehicles



- co-supervised PhD
- collaborative projects



- 6 PhD Defended
- 7 PhD in progress
- EMR as common tool
- generic model of HEV (Prize)



Paper Prize Award of IEEE-VPPC'08

- Experimental platforms, and vehicles -

plate-form « eV »

Real-time energy management



plate-form

« storage devices »



plate-form « propulsion »



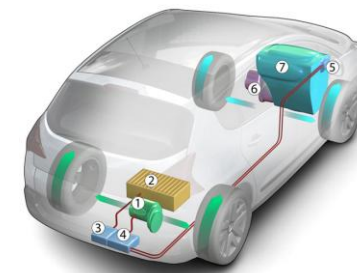
Toyota Prius II



DPE 6x6



3008 HY4



- EVs and HEVs (and other vehicles) are more and more complex
- High dynamic performances and high efficiency are required



powerful tools for modeling, control and energy management

1. Modeling of a subway (Univ Lille1, Siemens, France)
2. Modeling of an hybrid locomotive (Univ. F Comté, Alstom, France)
3. Modeling of a subway line (Univ. SouthEast, China)
4. Energy management of a HEV (Univ. Carlos III, Spain)
5. Modeling of a Lead-Acid Battery (Univ. Rio Cuarto, Argentina)
6. Energy management of a HEV (IFSTTAR, France)
7. Modeling of an Electric Vehicle (Univ. Rio Cuarto, Argentina)

1. 2. EMR (functional description)

5. 7. Bond Graph (structural description)

1. 6. Backward approach

1. 2. 3. Forward approach

4. Adaptive energy management

6. Optimal energy
management