



Innovation policy, information society, telecommunications

30 years German-French Cooperation in Transport Research (DEUFRAKO)

Workshop B: Alternative Propulsion Systems for Clean
Vehicles

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Alternative Propulsion Systems for Clean Vehicles

Structure:

A.1 Overview about the results of the 2nd R&D- Programme „Mobilität und Verkehr“ (2000-2007)

A.2 The priorities of the new (3rd) R&D-Programme
“Mobilität und Verkehrstechnologien” (2008 - 2011),
field “Environmental Protection”

A.3 Ideas for DEUFRAKO cooperation



Alternative Propulsion Systems for Clean Vehicles

A.1 Overview about the results of the 2nd R&D-Programme „Mobilität und Verkehr“ (2000-2007) in the research field „Schonender Umgang mit Gesundheit, Umwelt und Ressourcen“

Aims of programme

- ▶ Minimizing the use of materials and energy necessary for transport
- ▶ Traffic emissions must not lead to unacceptable effects in the environment and on the health of people

Subprogrammes (with focus to environmental/ health protection):

- ▶ “Auf dem Weg zur Minimalemission” (1998-2008),
- ▶ “Alternative Antriebe/ Hybridkonzepte” (2005-2010) and
- ▶ “Leiser Verkehr” (2002-2008),



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Selected results of the subprogramme (1):

“Minimalemission” (“Minimum Emission”) :
about 25 demonstration projects

- ▶ Reduction of PM and NOx of Diesel engines
- ▶ New Concepts and components for alternative drive trains
- ▶ New measurement techniques for detection of minimum emissions
- ▶ Reduction of traffic noise “at the source” on rail and road



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Selected results of the subprogramme (2):

“Hybridantriebe” (“Hybrid drive trains”) :
about 10 demonstration projects

- ▶ Development of electrical energy storage components and systems
- ▶ Development of core components and functional modules of power train
- ▶ Application and integration of power train into vehicles
- ▶ Test and validation in real life



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Aims within the programme-area “Environmental Protection”

- ▶ **Managing the challenges of the climate change**
- ▶ **Meet the emission regulation of the future to minimize the impact of traffic on environment and health**

Fields of future R&D-activities

- ▶ **Alternative drive-train technologies and fuels**
- ▶ **New materials and processes in automotive and engine technologies**



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R&D-activities in the field of alternative drive trains and fuels

- ▶ Advanced Hybrid Vehicles
- ▶ Plug-In Hybrid vehicles
- ▶ Electric Vehicles
- ▶ Next generation of bio fuels



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- ▶ R&D-activities in the field of new materials and processes
- ▶ New Combustion Systems (e.g. CAI, HCCI)
- ▶ Advanced fuel injection technologies and modelling
- ▶ Friction optimization
- ▶ Resilient materials to meet increased requirements for pressure and temperature



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Ideas for DEUFRAKO-cooperation

- ▶ Development/ testing of new materials/ concepts for electricity storage
- ▶ Fleet/ field tests of hybrid/ electric vehicles
- ▶ Mechanical/ electrical power from thermal waste energy
- ▶ Fundamental research on new combustion concepts (CAI, HCCI) and combustion control



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**Thank You for
Your Attention**