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## PRADE - Supporting processes: bonded joints and repairing

### IMAST members involved:

- Avio S.p.A.
- CIRA S.c.p.A. - Italian Aerospace Research Center
- CRF S.c.p.A - FIAT Research Center
- Adler Plastics S.p.A.
- FGA S.p.A. - Fiat Group Automobiles
- CYTEC Italy S.r.l.
- CETENA S.p.A.
- CNR - Institute for Composite and Biomedical Materials (IMCB)
- University of Naples Federico II - Department of Aerospace Engineering (DIAS) and Interdepartmental Research Center on Biomaterials (CRIB)

The purpose of the PRADE research project is the improvement of some **processes**, considered auxiliary to the main manufacturing ones, but necessary for the realization of complex structures for the transportation industry. In particular, two main processes will be improved: **adhesive joints** and **repairing**.

The development of materials will be aimed to obtain **multifunctional systems** with **electrical**, **thermal** and **dielectric** properties, as well as systems able to repair themselves. The optimization process will consider all aspects that contribute to develop "integrated" technology solutions such as the development of materials, modeling of product/process and the evidence on a significant scale.

In the frame of adhesive joints in **automotive** systems, **thermoplastic adhesives** activated by **electromagnetic fields** and **thermosetting conductive adhesive** that can be subjected to **cataphoresis** will be developed. In the **naval** field, in parallel, an adhesive joint **flexible** and **resistant to high temperature** will be developed.

In the frame of repairing in the **automotive** field, a **coating for cataphoresis** having properties of "**self-healing**" and transparent varnishes with **anti-scratch properties** will be developed. In the **naval** sector a **composite system** for the **repair of metal structures** will be developed. In the **aerospace** sector a **composite system** for the **repair of engines** will be made.

