Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM

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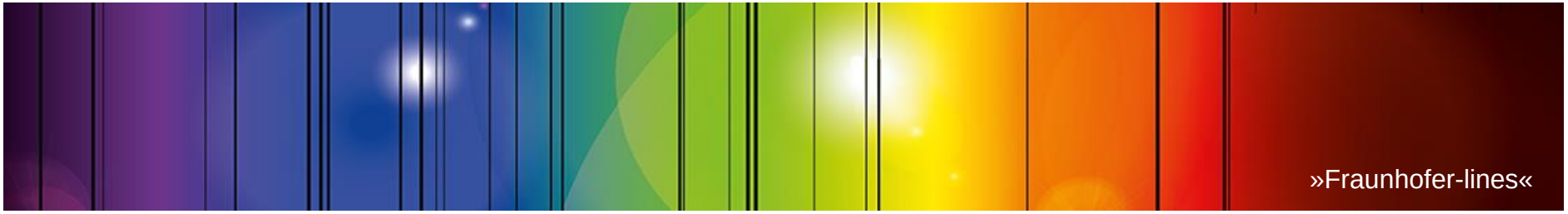
IFAM

The Fraunhofer-Gesellschaft in 2018

- Applied research for the immediate benefit of private and public enterprises and as an asset to society as a whole
- 72 institutes and research units
- Close to 25.327 staff
- More than € 2.3 billion total annual research budget. Of this sum, around € 2.0 billion is generated by contract research
  - More than 70 % of this sum is generated through contract research on behalf of industry and publicly funded research projects
  - Roughly 30 % is contributed by the German federal and state governments as base funding



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The Fraunhofer IFAM in 2018

- established in 1968; part of FhG since 1974
- headquarter in Bremen
  - locations in Dresden, Stade, Oldenburg and Wolfsburg
- approx. 668 employees;
  research budget in 2017 ca. 48.6 Mio. €
- two divisions focusing on material science:
  - shaping and functional materials
  - adhesive bonding and surface technology
- close co-operation with the Universities of Bremen and Dresden
- certifications: ISO 9001, ISO/IEC 17025 and 17024

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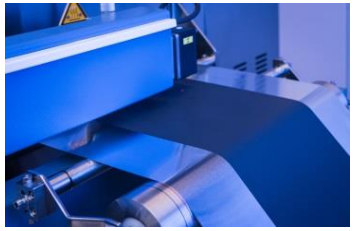
Shaping and Functional Materials

Materials → Shaping → Function → Test → Application → System integration



Production technology and applied material research for the areas of application

Shaping, Functional Materials, Electrical Systems...

Development focus:

- Materials
- Production of precision parts and components
- Production integration
- Energy systems and electromobility

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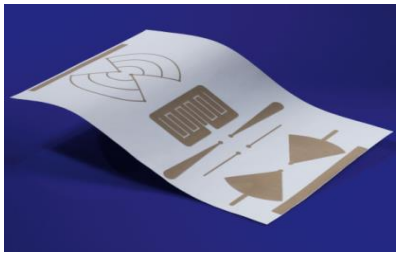
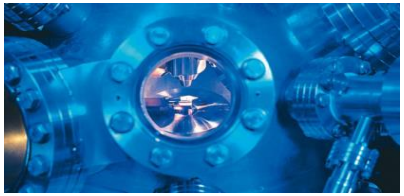
Adhesive Bonding Technology and Surfaces

Materials | Manufacturing semifinished parts | Surface modification | Assembly and joining technologies | Repair processes | Quality assurance





Manufacturing technology and applied material research for the areas of application

Polymer Materials, Adhesive Bonding Technology, Surface Technology and Automation

Development focus:

- Materials
- Production integration
- Rapid processes
- Reliability and quality

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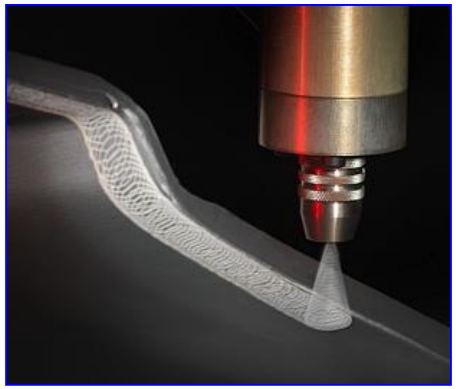
Fraunhofer IFAM – Core Competencies

SURFACE TECHNOLOGY

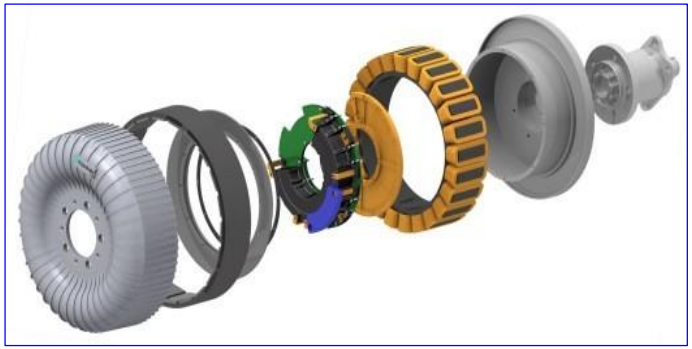
ADHESIVE BONDING



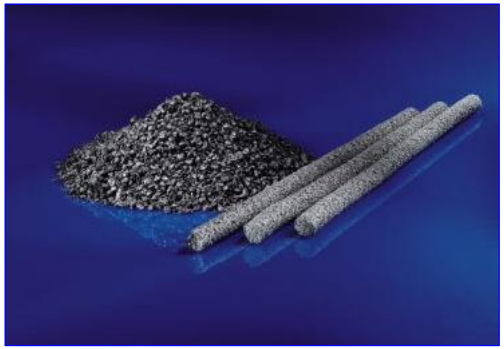
POLYMERIC MATERIALS

AUTOMATION DIGITALIZATION

SHAPING AND FUNCTIONALIZATION



ELECTROMOBILITY



METALLIC MATERIALS

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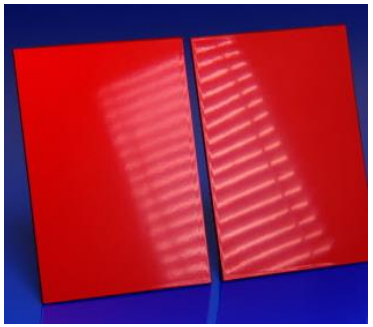
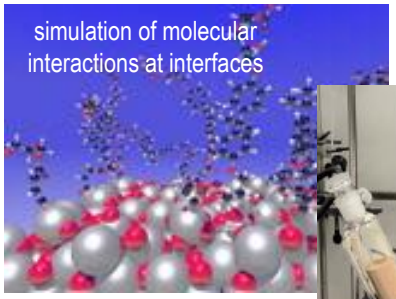
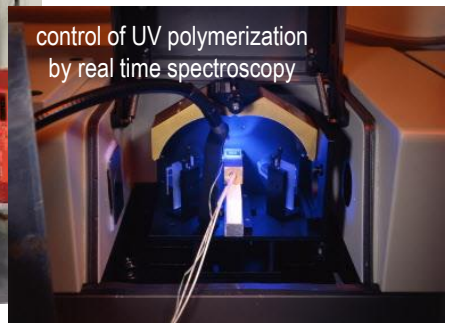
Polymer Development and Compounding

- molecular design and synthesis of educts
- polymer synthesis and control of reaction processes, mostly thermosets
- renewable raw materials, controlled degradable plastics
- switchable multi-functional polymers







- compounding of adhesives, coatings, potting materials and matrix resins
- near net shape manufacturing of fiber reinforced plastics

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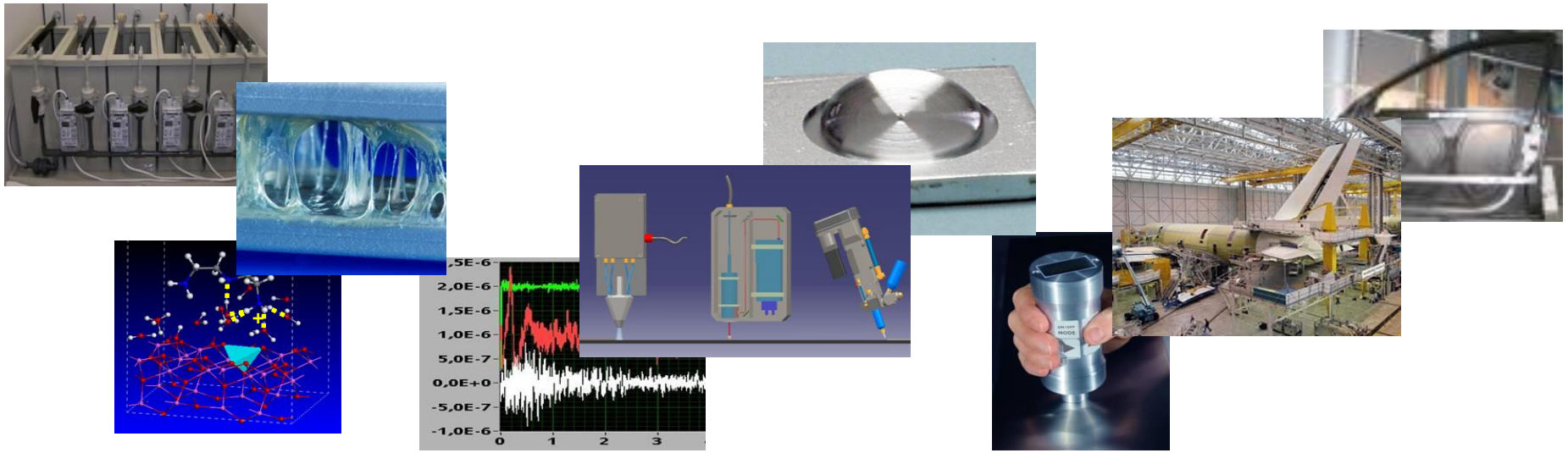
Adhesion and Interface Research

development of materials and processes	development of tests and techniques	production	in-service
adhesives surface treatment	techniques for material and surface evaluation computational chemistry	quality assurance of surfaces	failure analysis development of sensor devices



→ *development of analytical strategies, materials, processes, techniques*

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Automated Assembly Processes

- adaptive setting of form and position of CFRP parts by hexapods
- vacuum grabs for part handling
- grabs with integrated force-displacement sensors; tension controlled assembly processes

Flexible assembly processes:

- short cycle time with reduced manual work
- tolerance adjusted assembly
- sealing of joints and rivets
- high process safety
- hard- and software solution for sensor-guided CAD/CAM-systems

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Organization of Tours and Name Badges

People who had registered for AIRBUS, but the tour was already booked out have been moved to the DAIMLER tour.

IFAM TOUR: I, II, III, IV, V, VI, VII, VIII

A1 + A2: YOU MUST BRING A VALID ID WITH PICTURE TO THE TOUR (Passport etc.)

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IFAM Tours

E-Lass / MariLight members (Wednesday, 29-01-2020,17:00-18:00):

Four groups: V-VIII (17:00 – 18:00)

Labs to visit:

- corrosion testing (rooms 0.5.23 and U.5.10, Peter Plagemann, Oliver Kranz)
- paint / lacquer technology (rooms 2.2.08 and 2.2.09, Dorothea Stübing)
- adhesive bonding (rooms 2.3.02 and 2.3.03, Sebastian Myslicki)
- mechanical testing, FRP manufacturing (rooms 0.3.06 + 0.3.07 and 0.2.02, Nick Wolter, Markus Brede)

Meeting point: IFAM, *Large Lecture Room* at 11:00 and 17:00

IFAM Tours

E-Lass/MariLight: Four groups at each Tour: V-VIII (17:00 – 18:00)

V	corrosion ➔ paint ➔ adhesive bonding ➔ mech. testing/FRP	Niklas Neumann
VI	paint ➔ adhesive bonding ➔ mech. testing/FRP ➔ corrosion	Katharina Koschek
VI	adhesive bonding ➔ mech. testing/FRP ➔ corrosion ➔ paint	Horst Rikeit/Madlen Baumert
VIII	mech. testing/FRP ➔ corrosion ➔ paint ➔ adhesive bonding	Katharina Haag

EACH STATION: 15 minutes!!