FRAUNHOFER INSTITUTE FOR MANUFACTURING TECHNOLOGY AND ADVANCED MATERIALS 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
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
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
Adhesive Bonding Technology and Surfaces

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
Fraunhofer IFAM – Core Competencies

- Surface Technology
- Adhesive Bonding
- Polymeric Materials
- Automation Digitalization
- Shaping and Functionalization
- Electromobility
- Metallic Materials
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
Adhesion and Interface Research

- development of materials and processes
  - adhesives
  - surface treatment

- development of tests and techniques
  - techniques for material and surface evaluation
  - computational chemistry

- production
  - quality assurance of surfaces

- in-service
  - failure analysis
  - development of sensor devices

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

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