

TECNO

Your objectives, our expertise, a shared strategy.

University of L'Aquila · DIIIIE · CIRTIBS

TECNO is a research and industrial services laboratory at the University of L'Aquila, coordinated by Prof. Francesco Lambiase (ING-IND/16, Associate Professor). Custom engineering solutions for advanced manufacturing, materials characterization, multi-material joining and AI-driven process optimization – developed around your specific challenge. **100+ scientific papers · 5,200+ citations · Google Scholar.**

Collaboration models

RESEARCH PARTNERSHIP

Complex challenges, structured collaboration

Co-funded R&D with national & EU programs (MISE, PNRR, Horizon). IP co-ownership. Typical duration: 12-36 months.

TECHNICAL SERVICES

Specific needs, fast turnaround

Direct agreement, fixed scope, agreed deliverables. Typical duration: 4-16 weeks.

Core services

01 Mechanical & thermal characterization -130 °C to +330 °C · DMA · DSC · FLIR up to 2000 °C	02 Multi-material joining Electrically Assisted Joining (patented) · Laser · Friction Spot · Clinching	03 Additive manufacturing Binder Jetting · FDM · SLA · DLP · PEEK · ULTEM · PAEK
04 Critical materials recycling Thermomechanical recycling · CRM recovery · Laser & waterjet dismantling	05 Surface functionalization Laser functionalization · Coatings · Adhesion enhancement	06 Custom AI solutions Predictive models · Computer vision QC · Digital twin · Real process data

Patent portfolio



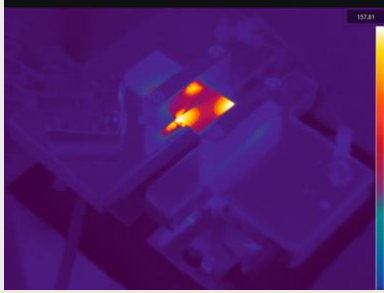


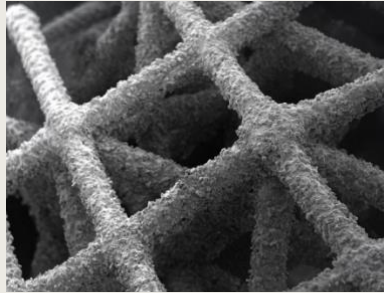
Patent portfolio – Joining of dissimilar materials – 5 granted Italian patents		2 European extensions
IT 102018000010611	Joining of two conductive materials – different melting points (metal-metal)	EP 192119386
IT 102019000010503	Joining of two materials, at least one conductive (metal-polymer / composite)	
IT 102020000001297	Joining of two non-conductive materials via external conductive element	
IT 102020000012409	Mechanical joining of metals, thermoplastics and thermoplastic composites	EP extension
IT 102021000014363	Joining of polymer matrix fibre-reinforced composite components	

€ 1.890.000+

FIS3 Advanced Grant 2025
Italian National Science Fund

Project Prometheus: PProcess Optimization through Multi-physics
and Experimental THEoretical Unified System

Laboratory – key equipment

		
Customized component testing (3D Printing)	Formability assessment of CFRP for simulation (AUTOMOTIVE)	Thermography analysis for fault prediction
		
Surface cleaning through pulsed LASER	ABB IRB2600 Robot	Scanning electron microscopy (SEM) of complex

Complete equipment list

MECHANICAL & THERMAL TESTING

- **MTS Criterion** · 50 kN · -130/+330 °C
- **FLIR A615** · up to 2000 °C · macro lens
- **DMA 850 – TA Instruments** · Dynamic Mechanical Analysis
- **DSC 25 W/MDSC – TA Instruments** · Differential Scanning Calorimetry
- **Capillary Rheometer (custom)** · MFI · polymer melt characterization

MICROSCOPY & SURFACE ANALYSIS

- **SEM Philips XL30** · BSE/SE imaging
- **LEICA M205 + LEICA MAP** · 3D surface reconstruction · metrology
- **LEICA DMI8** · Metallographic · brightfield · DIC

ADDITIVE MANUFACTURING

- **FUNMAT PRO 410** · PEEK · PAEK · ULTEM · 450 °C nozzle
- **FDM · SLA · DLP systems** · engineering polymers
- **Custom filament extruder** · compound filament production
- **Plastic injection molding** · thermoplastic components

ADVANCED PROCESSES & JOINING

- **Pulsed fiber laser – LASIT** · 30 kW peak · ablation
- **Abrasive waterjet machine** · multi-material cutting
- **ABB IRB 2600** · process automation · joining

AI & DIGITAL

- **GPU AI workstation** · deep learning · model training
- **DIC – Digital Image Correlation** · full-field strain mapping



Selected industrial partners

Thales Alenia Space · CRF – Stellantis · PROPLAST · XERA · COMEC · DigitalSoft · CAMS S.p.A. · TREDDY

SCIENTIFIC COORDINATOR

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NETWORK

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