

# J-TECH@POLITO

## Advanced Joining Technology at POLITO



Company				Ready to cooperate with J-Tech on:
		General Electric	Company	New brazes, mechanical tests, custom training
Research centre		Airbus	Company	Modelling, design, non-destructive tests
		Henkel	Company	Adhesive joining
		Titanium-Brazing	Company	Design, manufacture, and testing of multilayer, lightweight structures brazed from dissimilar metals layers or metal-ceramic layers
		MTA	Company	FRP joining, non-destructive tests
		Listemann	Company	New brazing alloys, non-destructive tests
		ELEMENT	Company	Adhesive joining, modelling, non-destructive testing
		ESI	Company	Dissimilar materials joining/welding
		Endurance	Company	Non-destructive techniques
		NASA	Research centre	Joining silicon carbide-based materials, non-destructive testing
		ORNL	Research centre	Evaluation of joining and integration technologies
		QMUL	Research centre	SPS joining, joining of thermos-electrics, of CMC
		Fraunhofer-IFAM	Research centre	Development and technology transfer for similar and dissimilar materials joined components
		Centro Ricerche FIAT	Research centre	Non-destructive testing, joining dissimilar materials
		IPPT	Research centre	Joining dissimilar materials, micro-CT examination, micro-mechanical testing
		CNR	Research centre	Interfacial reactions, wettability studies
		KMM-VIN	Research centre	Modelling, joining dissimilar materials

### Contact points:

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- Advanced testing and monitoring of joined components** with the new, custom-built J-TECH scanning facility for non-destructive testing (available mid 2018)
- Advanced joining materials and processes:** J-TECH custom built, multi-purpose facilities to join and test every kind of material (available mid 2018)
- Advanced modelling of joints:** validation of structural modelling and design capability for emerging processes

- Custom joints** for composites, polymers, metals, ceramics, and glasses; joining for aerospace, biomaterials, energy production, high temperature applications, photonics, thermonuclear fusion (ITER); new generation fission reactors (Gen. IV); sealants for solid oxide fuel cells.
- Custom coatings** by slurry or sputtering for metals, ceramics, composites, glasses; coatings for aerospace, biomaterials, energy production, high temperature applications, photonics, thermonuclear fusion technology, civil engineering.
- New **surface treatments** to enhance adhesion, wear resistance of **metallic materials** (Ti and Ti-alloys, Co-alloys and shape memory alloys). Atoxic metal matrices for hard metal tools.
- Thin film deposition by co- sputtering:** metal nanocluster doped silica thin films for poling, Localized Surface Plasmon Resonance Sensors and antibacterial applications; thin films for intermediate temperature solid oxide fuel cells.

**Available facilities:** high temperature furnaces, sputtering, cutting machines, polishing machines, preform fabrication and fibre drawing, hot press sintering, surface profilometry and 3D morphology, refractive index measurements on solids and thin films, UV, visible and IR spectroscopies, hot stage microscopy, thermal analysis, microscopic analysis, facilities for biological/medical materials processing, mechanical tests.

Available for outsourced research, problem solving, project management, custom hands-on training and custom lecturing for large companies and SMEs. Subjects are directly agreed with customers. English and French speaking researchers are currently available for lecturing and training.