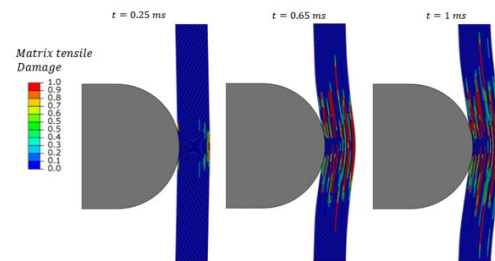
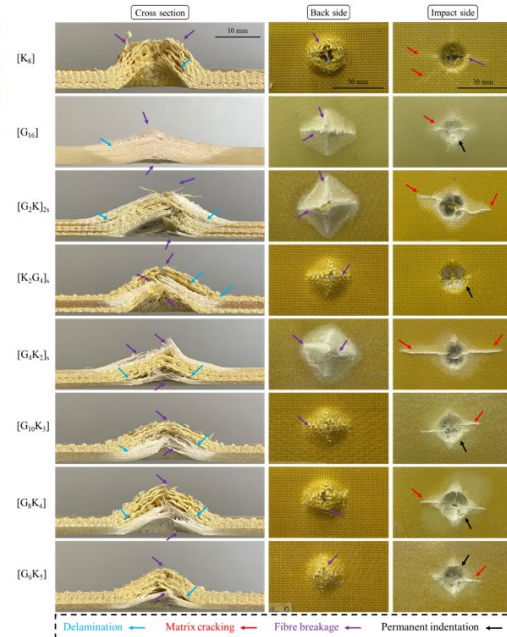
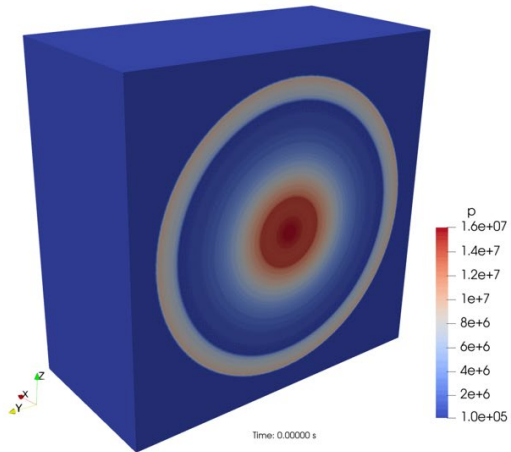
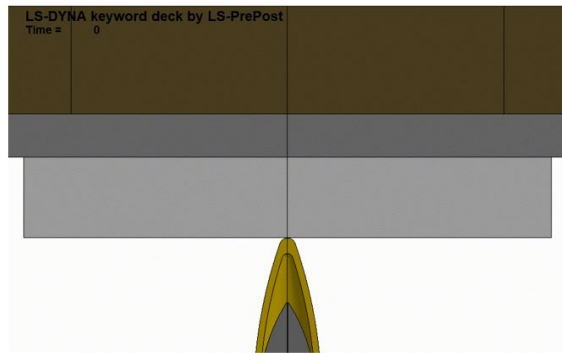


ADVANCED MODELLING AND TESTING OF MATERIALS AND STRUCTURES FOR MACHINE DESIGN



Description of the subject:

The study focuses on material behaviour and structural integrity under several loading conditions including extreme loading conditions (impacts, explosions, ect) as well as innovative modelling and design approaches including survivability approaches.

Goals:

- understand the mechanical behavior of materials (metallic, composite, ceramics) and structures under impact on loadings
- perform survivability analyses

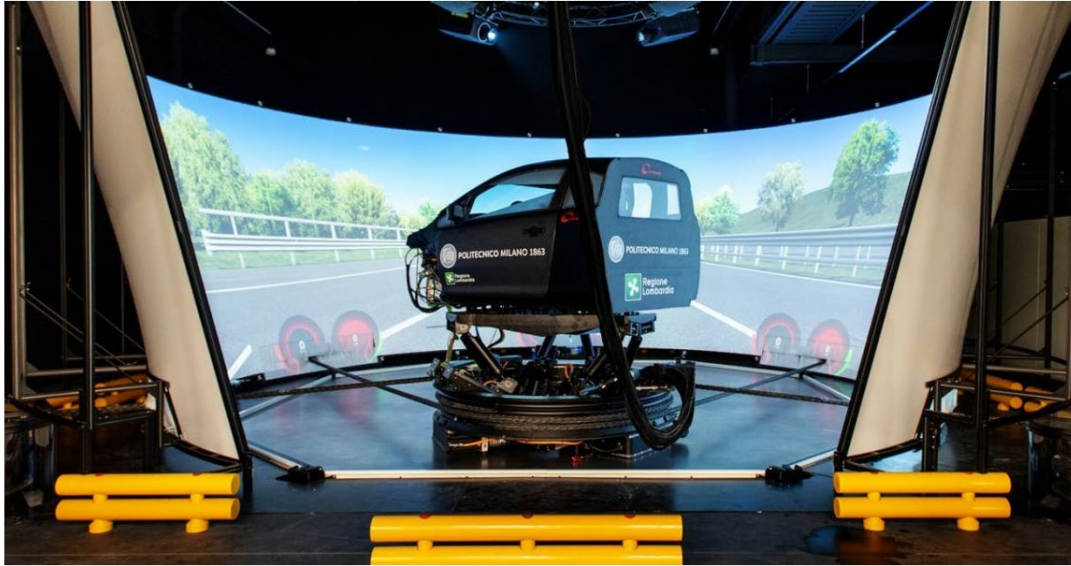
Period abroad: it is strongly recommended / it can be arranged also exploiting the large network of the research team

Research group:
Prof M. Giglio, Prof A. Manes



POLITECNICO
MILANO 1863

COOPERATIVE CONNECTED AND AUTOMATED MOBILITY



Research group:
Prof G. Mastinu, Prof M. Gobbi

Description of the subject:

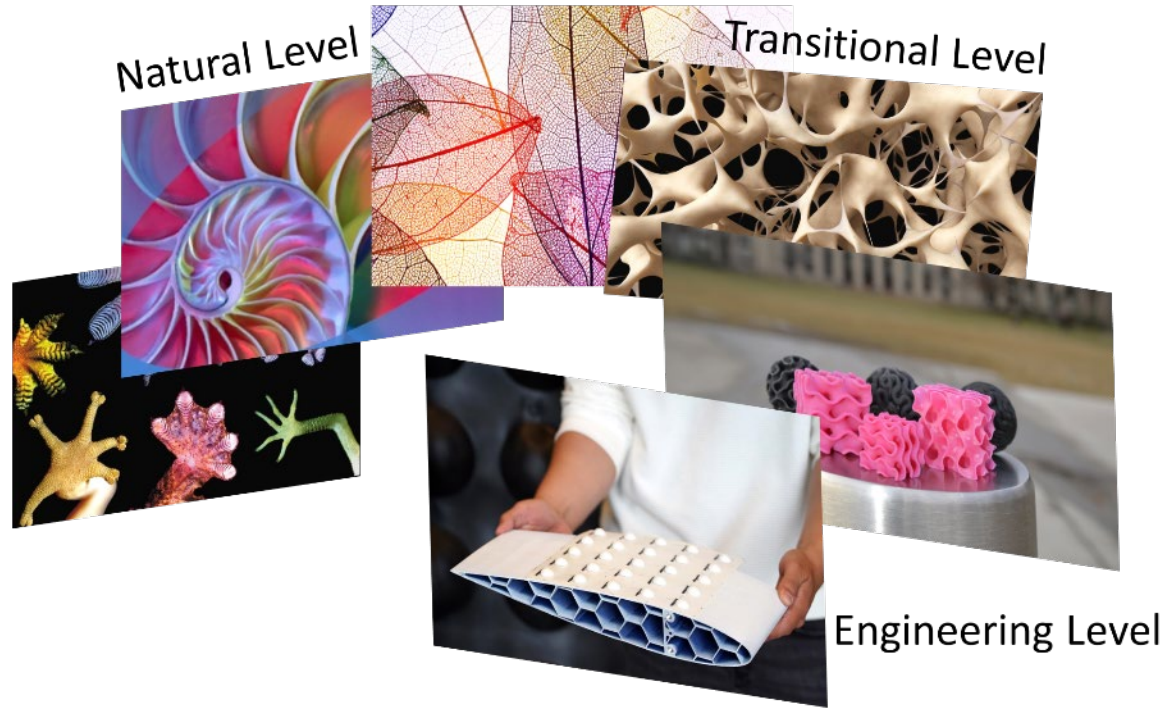
The focus is on the autonomous driving implementation, optimising the vehicle and its functionality by improving its fuel economy, travel time and safety.

Goals:

- understand and apply EDGE technology for cooperation and connection between autonomous vehicles
- study the interaction between autonomous and humanly driven vehicles
- sensing forces acting at vehicle wheels
- create an autonomous driving policy

Period abroad: strongly recommended

UNRAVELING DAMAGE EVOLUTION IN BIO-INSPIRED MATERIALS: AN INTERDISCIPLINARY MULTI-SCALE STUDY FOR ENHANCED MECHANICAL DESIGN



Research group: Prof L.M. Vergani

Description of the subject:

Fracture and damage mechanisms in bio-inspired materials are still a black box. This PhD path seeks to identify multi-scale structural and functional features that allow bioinspired materials to withstand damage and to design and realize novel materials and structures that can mimic these properties.

Goals:

- Elucidation of the multi-scale structure and damage response of bio-inspired materials
- Design and realization of more sustainable and resilient materials

Period abroad & Collaborations:



Massachusetts
Institute of
Technology



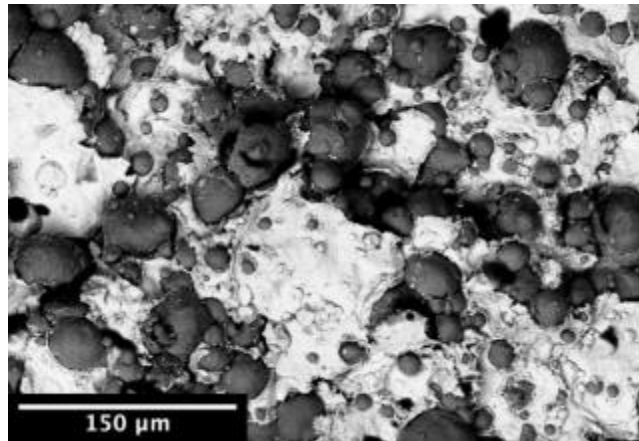
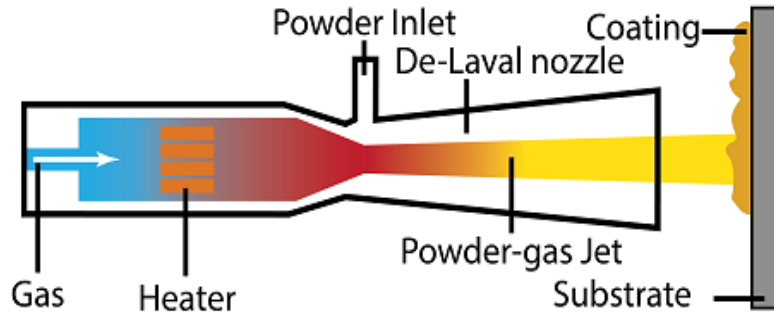
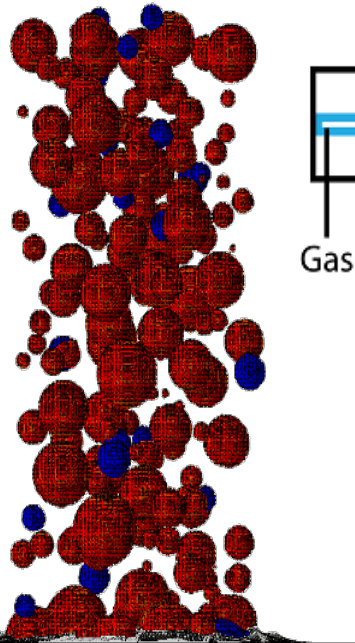
Elettra Sincrotrone Trieste



Gruppo
San Donato



ADDITIVE MANUFACTURED HETEROGENEOUS MATERIALS OBTAINED WITH COLD SPRAY



Research group:
Prof. Sara Bagherifard



Description of the subject:

Cold Spray is a solid state deposition technique that offers unprecedented flexibility for depositing a wide range of mixed powder feedstock for multi-material additive manufacturing.

Goals:

This project will exploit finite element modelling and advanced experimental (deposition and characterisation) methods to:

- Design and fabricate multi-material deposits
- Identify and manipulate the strengthening mechanisms at the interface between the phases
- Characterize and modulate the mechanical performance of the composite deposits (static, fatigue, etc.)

Period abroad: 6-9 months