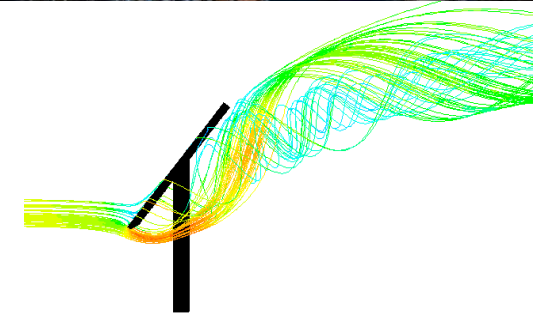
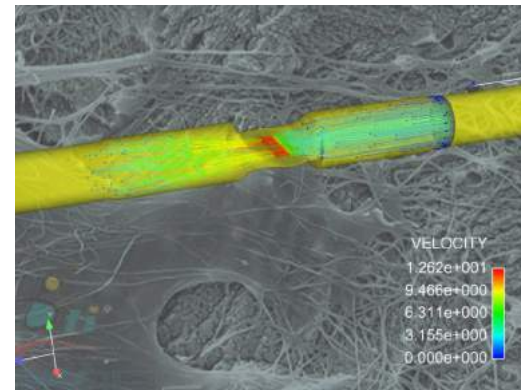
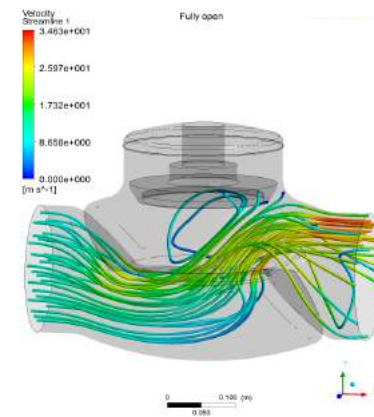
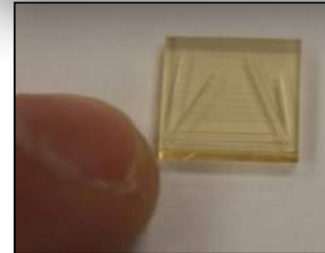
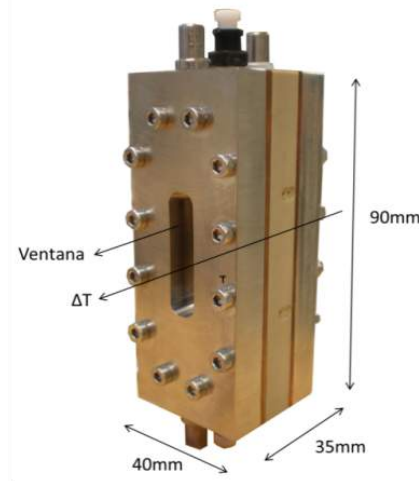


# FLUID MECHANICS

**MONDRAGON**  
UNIBERTSITATEA

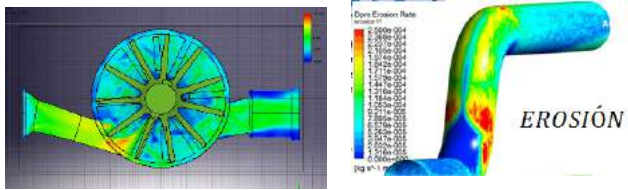
GOI ESKOLA  
POLITEKNIKOA  
FACULTY OF  
ENGINEERING



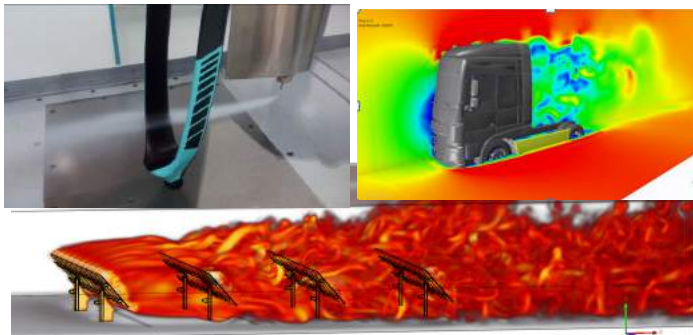
The research activities developed in the group of Fluid Mechanics combine models and methods, both analytical and numerical and experimental. The results of these activities have led to new collaborations with internationally renowned institutions such as the European Space Agency (ESA), among others. It also has a large number of external partners, both nationally and internationally, as reflected in the different joint projects developed and the work published in collaboration. The main objective of the Fluid Mechanics group is to acquire and generate new knowledge to continuously advance in their research areas by encouraging, at national and international level, cooperation in higher education and technology transfer to innovation and the quality R&D&i.

# Research Areas

## Thermofluidic-Aerodynamics



This team develops various research projects and technology transfer activities by numerical simulation of fluid dynamics (CFD) and experimental validation. The group that began researching in the field of aerodynamics in the sectors of energy, automotive, construction and sport, has now extended its work to other areas of scientific and technical interest. These projects include studies of multiphase flows, coupled thermofluidic problems and fluid-structure interaction.



## Complex fluids



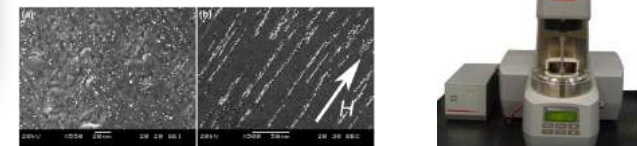
With a proven international experience in the field of transport phenomena in liquid mixtures and simulation of the behaviour of the thermo-hydro-dynamic fluid, thermo-hydro-dynamic stability, etc. It should be noted that recently, the team is working on projects especially related to Health and Energy sector, covering studies related to microfluidics, nano-fluidics, liquefied fluids under high pressure, fluids of biotechnological interest and multicomponent liquid mixtures.



## Magnetorheological materials



This team has identified this area as a strategic line of research in the field of technology transfer, especially for the industrial sector. The research team has focused on the synthesis, characterization and modelling of both magnetorheological fluid and elastomers, with the aim of developing a new generation of intelligent systems to be applied in the industrial environment. According to this objective, to date, it has worked primarily in four sectors: Vertical Transportation, Machine Tool, Automotive and Whitegoods.



2015  
2016

5 PhD  
Students

5  
doctores

3  
European  
Project

10 contratos  
de  
transferencia

1  
Ikerbasque

600 000 €  
budget

12 JCR  
publications

2 patents

2 books  
chapters

## EQUIPMENT

- Software: ANSYS (Campus edition), XFLOW
- 8 work stations, 2 computer clusters (292 cores in total)
- Density meter, rheometer and viscometer (for high and low pressure)
- Thermo-gravitational and molecular diffusion installation
- Refractometer, thermal imaging camera

## LABS

- CFD
- Wind tunnel
- Microfluidics
- Complex fluids

## PROJECTS

- SUSFOOD-SUNNIVA
- DCMIX
- ACTIMAT
- HAIZELAB

## COLLABORATION NETWORK



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