



Few numbers and info  
about DII

Students: 7000  
Academic Staff: 130  
Non-Ac. Staff: 60  
PhD Candidates: 60

Bachelor and Master  
degrees in:

- Aerospace Engineering
- Mechanical Engineering for Energy and Environment
- Mechanical Engineering for Design and Production
- Mechanical Engineering
- Management of Defense Aerospace Systems
- Naval Architecture and Marine Engineering

Doctoral degree in  
Industrial Engr.: the 37th  
cycle is just started.

International  
Agreements: 34

Double degrees: 3

Erasmus Mundus Joint  
Master Degrees:  
Coordinator: 1

ERASMUS+ KA203: 1

Research Projects: 10  
<https://urly.it/371nm>

## News / Head and Deputy Rector

The autumn semester has been full of events for our university and our department: we have a new *Magnifico Rettore*, prof Matteo Lorito. During his 6-years mandate, in 2024, the University will celebrate its **800th anniversary**. One of the first acts of our Rector was the appointment of our head, Prof. Rita Mastrullo, as deputy rector, first time for a woman in that position. Good luck to both of them! The Department in the next weeks will vote for the new Head.

## COVID-19 / Updates

The summer has passed, and freshmen have been welcomed with real, tasty, Neapolitan coffees. The Department with the whole University, in the period September-November, ensured face-to-face teaching to all 1<sup>st</sup>-year students to start their beautiful journey together. However, the COVID emergency has not disappeared: it was as salt in our coffees. Thus, remote learning has continued for the other students (>1st year) and now for freshmen too. But we have to say that we are learning all together, enhancing our tools for teaching, meeting and working, enhancing our smart-working-related soft skills. COVID made us less happy, but hopefully stronger. A close tomorrow, we will be happier and stronger tasting again real coffees, all together.

## From our Labs: Lighting and Photometry Lab (by Prof. Laura Bellia)



At present, the research group in lighting technology is mainly focused on the proposal and development of new strategies and tools aimed at assessing and achieving high quality lighting conditions in indoor environments. With a holistic approach, also energy efficiency and sustainability are considered, being aware that environmental issues need special attention. In compliance with the research topics promoted by the *Commission Internationale de l'Eclairage* ([www.cie.co.at](http://www.cie.co.at)), we are carrying out research activities about both visual and non-

visual effects of lighting, considering daylight harvesting and integration between daylight and electric light, achievable through the use of automatic controls. The novelty is given by the possibility to properly modify the spectrum and the intensity of light during the day, according to visual tasks and human needs as well. Some of this research is focused on cultural heritage applications and specifically on the more suitable light spectral and spatial distributions for the best color perception and good fruition of artworks. An agreement stipulated with the Superintendence of Pompeii allowed us to analyze light conditions in ancient domus and for a study on the *Villa dei Misteri*, we started a cooperation with the research group of dr. J. Monteoliva (CONICET, Mendoza, Argentina), during his stay in 2018 as visiting researcher, thanks to a CONICET funding. Anyway, especially for indoor environments where people spend most of their time, it is proved that lighting affects not only vision, but it has also an impact on human mood, state of alertness and performance of occupants. Furthermore, using a German noun, lighting is the main “Zeitgeber” for the circadian rhythms. For this reason, for the period 2019-2022, we stipulated an agreement with the Bialystok Univ. of Technology (Poland), for analyzing daylight spectra in Italy and Poland to develop multi-channel and dynamic lighting systems for effective circadian entrainment. The research is funded by the Polish agency Nawa and allowed us to exchange researchers. We are also participating to the *Dynalight project*, funded by the Spanish Government and proposed by a research group of the University of Seville: we experienced that the effects of a good light during daytime are better than a good cup of coffee!

## Conferences and Workshops 2021-2022

- SAE 2020: Big Data for Small Area Estimation / 5-7 July 2021 / <https://sae2020.org>
- IEEE MetroAerospace 2021, 21-23 June 2021, Piazzale Tecchio, [www.metroaerospace.org](http://www.metroaerospace.org)
- ISSM 9th / International Symposium on Scale Modeling / 3-5 March 2022

Published Papers during 2020: about 200



Even bad coffee is better than no coffee.

David Lynch

A coffee pot on the stove is enough to fill a room

Erri de Luca

To be good, coffee must be black as night, sweet as love and hot as hell.

M. A. Bakunin

I have measured out my life with coffee spoons.

T.S. Eliot

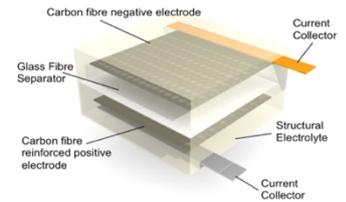
On last October 2020, Italian espresso coffee began a bid to claim a place on UNESCO's list of protected intangible world heritage products. The Consortium which protects the traditional Italian Espresso Coffee announced the birth of the Community for the Rite of Espresso Coffee. The initiative asks people to sign a petition on [www.ritodelcaffè.it](http://www.ritodelcaffè.it) and to contribute to the creation of an e-book collecting personal experiences linked to the everyday ritual of drinking espresso.

According to the Italian Espresso Institute, the Italian espresso industry generates turnover of around five billion euros and employs almost 10,000 people in Italy. Perhaps unsurprisingly, Italy is top in the world for espresso production and consumption.

(source: ANSA)

## SOLIFLY (2021-2023)

Researchers belonging to the aerospace structures group and lead by Dr. Michele Guida participate in the project SOLIFLY: *Semi-Solid-State Li-Ion Batteries Functionally Integrated in Composite Structures for Next Generation Hybrid Electric Airliner*, funded by the European Union under the Horizon 2020 framework program for. SOLIFLY aims at supporting the long-term development of the European aeronautic industry, delivering the first aeronautic stiffened panel with an integrated semi-solid-state battery achieving TRL 4 by the end of the project and paving the way for making structural batteries a viable technology for the next generation hybrid electric airliner. The consortium is composed by our department Austrian Institute of Technology GMBH (AT); ONERA, French Aerospace Lab (FR); CIRA, Italian Aerospace Research Center (IT); Universitat Wien (AT); Custom Cells Itzehoe GMBH (DE). The final goal of this project is dedicated to the researching radical innovations for all aircraft systems and subsystems are needed for realizing future carbon neutral aircraft, with Hybrid Electric Aircraft (HEA) to be delivered after 2035, at first in the regional aircraft segment.



## Megaride



Megaride, with the Italian (or better, Neapolitan) pronunciation, the name of the legendary island from where the ancient city of Parthenope arose, or Mega Ride, at the English way, in reference to vehicle dynamics and races, is an innovative startup and spin-off company of Department of Industrial Engineering. Founded in 2016, by F. Timpone, F. Farroni and A. Sakhnevch, nowadays full-fledged members of DII, and aiming to the technological transfer of the activities carried out by the applied mechanics research group in the fields concerning real-time vehicle simulations, tire/road multi-physical modelling and automotive performance optimization, Megaride grew in the last years, gaining a significant role in the vehicle dynamics software market. Among the racing teams and car/tire manufacturers working with the DII spin-off company, can be mentioned AUDI Sport in Formula E and DTM, Ducati Corse in MotoGP, Trident in Formula 2 and 3, Ferrari, Maserati, Pirelli, Prometeon, Good Year and Hankook. The innovative software packages allow at reaching an advanced reliability level in the analysis, the comprehension and the reproduction and the physical phenomena involved in vehicle/ground contact. It allowed to be awarded as "Innovative Technology of the Year" at Hannover Tire Expo 2018, as "Development Tool of the Year" for Vehicle Dynamics International magazine in 2019 and recently as the winner of the Italian Master Startup Award.

## SHIPMARTECH

On 1st November 2020 a new project "Upgrading and Harmonization of Maritime Engineering Master's Level Courses - SHIPMARTECH" started within the ERASMUS+ Key Action 203 – Strategic Partnerships for higher education. Coordinator of SHIPMARTECH project is the Univ. of Tallinn and partners universities are Napoli Federico II, Zagreb and Aegean (MYTILINI). Erasmus+ KA2 projects are intended to result in the development, transfer and/or implementation of innovative practices at organisational, local, regional, national or European levels. Within this frame, SHIPMARTECH has the following objectives:

- (i) upgrading and harmonisation of Master's-level programmes in Marine Engineering/ Naval Architecture through the cooperation of four partner universities;
- (ii) enhancement the quality of curricula;
- (iii) enhancement the quality of courses via a more sophisticated and creative application of digital resources in blended and online teaching;
- (iv) increased internationalisation of students and lecturers.

The project will last 34 months and considers upgrading and harmonization of didactic material for 20 courses of Naval Architecture and Marine Engineering and an intensive pilot courses event. Interested lecturers may contact UNINA coordinator prof. E. Begovic ([ermina.begovic@unina.it](mailto:ermina.begovic@unina.it)).