



SAPIENZA
UNIVERSITÀ DI ROMA

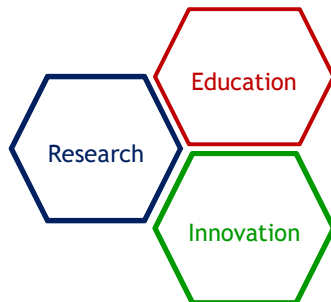
DIMA DEPARTMENT OF MECHANICAL AND AEROSPACE ENGINEERING

Newsletter - November 2017



HIGHLIGHTS

Excellence Departments



DIMA, after being selected among Sapienza excellence Departments for MIUR funding (Italian Ministry of Education), has recently presented its strategic development five-year plan. DIMA plan pursues an integrated vision of research, training and innovation. Value Proposition of DIMA is related to the development trends of Science and Technology. Starting from enabling abilities, it defines the strategic lines of its own development in terms of Competence Centers: **Space systems**: small sat, space science and access to space, **Computational mechanics**: High Performance Computing, **Integrated engineering**: digital modelling for additive manufacturing. The plan follows ERC development lines, H2020, INDUSTRY 4.0. Space Economy, Space 4.0. The development plan has also collected, with supporting letters, the approval of Leonardo companies (Telespazio and Thales Alenia Space), General Electric (Avio Aero), AVIO and ELV (ASI), CNR and ESA.

NEWS FROM DIMA



- ❑ The **ASTRI** Program (Advanced STudent Research in space Industry) is taking-off! This training course was created in partnership with some important industries (Airbus, Thales Alenia Space, Avio OHB, RUAG, Telespazio Ariane Group).
- ❑ A new laboratory for **Additive Manufacturing** with the installation of the machinery for the production of metal components with laser technologies is now open in Sapienza main campus at Tuminelli building.
- ❑ A Proof of Concept Grant, reserved for researchers who have already obtained an ERC Grant, was assigned to Project "INVICTUS" presented by Prof. Carlo Massimo Casciola. **INVICTUS** (IN Vitro Cavitation Through UltraSound) was born from Project Bubbles from Inception to Collapse (BIC). The project addresses a crucial issue in the field of central nervous system disorders: the presence of medicines that can overcome the hemato-encephalic barrier. Before proceeding with costly and problematic ethical studies, economically viable tools are desirable. INVICTUS develops an immediately available biomimetic microfluidic platform for biologists, clinicians and pharmacologists that exploits the improvement in the permeability of the endothelium through cavitation bubbles and provides an integrated and low-cost platform to develop cavity-assisted drug delivery protocols. INVICTUS has crucial new features such as the three-dimensional geometry of natural size vascular channels with a true endothelial barrier, a correct infiltration rate, an adequate physiological cutting effort, and biochemical interactions in the presence of different, healthy, and diseased tissues.
- ❑ After 13 years revolutionizing our understanding of the solar system, NASA's **Cassini** spacecraft melted during its final, fatal partial orbit into the upper reaches of Saturn. On large screens mounted on Beckman Mall at the California Institute of Technology in Pasadena, in a sleepy predawn haze, the mission's extended web of researchers watched the signal fade out. Many have known each other for decades, their families growing up together at science meetings spread across the globe. "My scientific life is tied to this spacecraft, to this mission," says Luciano Iess, who has led Cassini's radio experiment since 1990.
- ❑ According to **Industry 4.0** guidelines, prof. Massimo Tronci has included a new course on «Smart Factory» for DIMA students of Industrial and Management engineering.



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- ❑ Professor Carcaterra will be the Scientific Coordinator for a new DIMA project in collaboration with CNR (National Research Council of Italy) on marine drones.
- ❑ Sapienza Racing Team, with **Gajarda**, has reached the second position in the Design Event competition, where the project is examined by some important judges from the automotive world; Gajarda also won the "Most Innovative Powertrain" award, promoted by MTU, for the most original propulsion and transmission design. Sapienza Racing Team with Gajarda will be at Bologna Motor Show 2017 next month.
- ❑ Now open new call for application for **DIMA Professional Master** "Satellite systems and services" and "Efficienza Energetica e Fonti Energetiche Rinnovabili". More information are available in our website.



OPPORTUNITIES FOR RESEARCH, NETWORKING AND INTERNATIONALIZATION

- The launch of the **Horizon 2020** Work Program 2018-2020 will take place on Friday, October 27th, 2017. Horizon 2020 is the European Union's Framework Program for Research and Innovation, with a budget of €77 billion between 2014 and 2020 to support scientific excellence in research, innovation and technological development.
<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>
- **Urban Innovative Actions** (UIA) is an Initiative of the European Union that provides urban areas throughout Europe with resources to test new and unproven solutions to address urban challenges. Based on article 8 of ERDF, the Initiative has a total ERDF budget of EUR 372 million for 2014-2020. The Urban Innovative Actions initiative unveils the topics selected for the third and fourth Call for Proposals to be respectively launched at the end of 2017 and 2018.
http://ec.europa.eu/regional_policy/en/newsroom/news/2017/06/29-06-2017-urban-innovative-actions-the-topics-selected-for-the-third-and-fourth-call-for-proposals
- Now open **Marie Skłodowska-Curie Innovative Training Networks** (ITN) with deadline on January 2018. The Innovative Training Networks (ITN) aim to train a new generation of creative, entrepreneurial and innovative early-stage researchers, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit.
<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-itn-2018.html>



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- The European Commission is launching the second **European Digital Skills Awards 2017**. Companies and other organizations are invited to submit projects they have implemented to improve digital skills in Europe for the awards. The best 4 projects designed at improving the digital skills of citizens, the labour force, ICT professional and in education will receive an award. The European Digital Skills Awards 2017 aim to showcase initiatives that develop the digital skills of Europeans in school, at work and in society in general. The initiatives should be easy to scale-up and replicate in other cities, regions, countries and sectors.



- "From today, the plan will no longer be called Industria 4.0, and will become Impresa 4.0. This is a team effort: we have tried to be as quantitative as possible". Thus Italian Minister of Economic Development Carlo Calenda presents the second phase of the national plan, **Impresa 4.0**. "This is the opening of our second chapter, and in it skills and employment will be the main protagonists". He emphasizes that "from January to June we had a trend of orders that marked a + 9%, in line with the objectives set in the first months of the year, and a very sharp cut in reserves, which for many years had been steady. The tools are working".



- Established in 2013 with the aim of promoting opportunities offered by the European Commission under the space Horizon 2020 program, the 3rd edition of the **Space Week 2017** will aim to provide new opportunities and competitive advantages in science and technology for the participants. It offers strategic networking opportunities and it is addressed to universities, research centers, industries, SMEs and SME associations or local administrations. <https://www.b2match.eu/spaceweek2017-italy>



- **Fly, Spin and Drop Your Thesis**. New edition! These are the international programs of ESA Education for those who wish to carry out thesis and / or conduct experiments on some specific issues with the European Space Agency.

For further information please follow this link: <http://www.esa.int/Education/>

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