



DCNS, Centrale Nantes and the University of Nantes join forces in the Joint Laboratory of Marine Technology within the framework of the NExT I-SITE project

DCNS, Centrale Nantes and the University of Nantes officially announced on Friday 14th October the creation of a joint laboratory for industry and research. The Joint Laboratory of Marine Technology will ensure that DCNS remains constantly at the cutting edge of advanced naval military technologies. The setting up of this joint laboratory continues a long history of co-operation between the three establishments.

Combining expertise for collaborative and innovative R&D

Centrale Nantes and the University of Nantes are joining forces with DCNS, the European leader in naval defence. The aim is to speed up technological developments in three key areas* of military shipbuilding and provide vessels with true operational superiority on the seas. This initiative is in line with the NExT (Nantes Excellence Trajectory) I-SITE project, which aims to make the Nantes area an international benchmark in two fields of excellence: health and the industry of the future, with a focus on advanced production technologies and ocean engineering.

The laboratory has been created to pool the academic and industrial expertise of Centrale Nantes, the University of Nantes and DCNS in order to generate qualified innovation for the industrial applications of DCNS in military shipbuilding.

Eric Papin, Director of Innovation and Technical Control at DCNS highlighted the significance of this collaboration:

“This partnership allows us to team up with researchers of international renown in fields of study that are of strategic importance for the group”. This collaboration ensures that the means and expertise of each entity are available to facilitate the work of the joint teams and improves access to European funding.

“This joint laboratory is in keeping with the long history of collaboration between our organisations in the naval area. The expertise of DCNS, combined with the research and innovation capabilities of Centrale Nantes and the University of Nantes, will allow us to create the best possible conditions for

the development of the naval defence industry and of marine renewable energies” stated Arnaud Poitou, Director of Centrale Nantes.

Working initially with a provisional budget of 4.5 million euros over three years, the laboratory will rely on the teams at Centrale Nantes and the University of Nantes, with the support of the National Center for Scientific Research and the R&T departments of DCNS Research. The latter comprises teams working on additive manufacturing within its disruptive innovations workshop “DCNS Innovation Booster”.

*** Three key areas of military shipbuilding**

Around thirty international researchers, professors, engineers, PhD students, Post-doctoral and Master’s students, spread across three teams partnered with DCNS teams, will work on the three chosen scientific themes:

1. Additive Manufacturing, particularly for large-scale items:

Cost-competitive metal additive manufacturing technologies are starting to be used in industry for the batch production of small-scale parts. By lifting the limits imposed by traditional processes, these technologies pave the way for innovative parts design and assembly, and thus the production of parts providing greater efficiency to vessels at sea, which were previously impossible to manufacture. Significant challenges remain however, such as the inspection and certification of manufactured parts, parts sizing, the number of usable materials etc.

Jean-Yves Hascoët, Professor and Dean of Research at Centrale Nantes and Laurent Coudray, Director of the R&D Research Programme at DCNS, will take head up this section.

2. Naval hydrodynamics, and simulator development:

The purpose of modelling in naval hydrodynamics is to have the means to predict the hydrodynamic performance and behaviour of ships and maritime platforms. Work will focus on predicting the behaviour of ships in swell with regards to both the design phases and operating conditions as well as the hydrodynamics of thrusters.

David Le Touze, Professor at Centrale Nantes and Jean-Jacques Maisonneuve, an expert in fluid-mechanics simulation at DCNS Research, will take the lead in this area.

3. Multi-physics numerical simulation, or the modelling and simulation of structures made with innovative materials

The goal of this team is to develop computer models to simulate the behaviour of materials, structures and complex phenomena, which current simulation software cannot tackle. This work will mean that we can design naval structures that are more resistant to shocks, vibrations and fatigue, particularly for polymer or metal structures produced via additive manufacturing, linking back to the first theme above. It will also provide a better understanding of the vibro-acoustic phenomena involved in improvements to the stealth characteristics of submarines.

Erwan Verron, Professor at Centrale Nantes and Jean-François Sigrist, Head of the Structural Dynamics Department at DCNS Research, will take charge of this area.

About Centrale Nantes:

Centrale Nantes is a French engineering school and member of the Ecoles Centrales Group. Its graduate, master and PhD programmes are based on the latest scientific and technological developments and the best management practices. Founded in 1919, Centrale Nantes’ 40-acre

campus welcomes 2050 students, including 1340 graduate students, 200 sandwich-course students, 240 PhD students and 270 Master students.

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About DCNS:

DCNS is the European leader in naval defence and a major player in marine renewable energies. As an international high-tech company, DCNS uses its extraordinary know-how, unique industrial resources and its capacity to build innovative strategic partnerships to meet its clients' requirements. The Group designs, produces and supports submarines and surface ships. The Group also provides services for naval shipyards and bases. In addition, the Group offers a wide range of marine renewable energy solutions. Aware of its corporate social responsibilities, DCNS is a member of the United Nations Global Compact. The Group reported revenues of €3.04 billion in 2015 and has a workforce of 12,953 employees. www.dcnsgroup.com

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About the University of Nantes:

A major presence in higher education and research in the west of France, the University of Nantes has never stopped moving forward. In the last 50 years, it has taken training and research to the highest level. Since 2015 it has been ranked among the top 20 French universities in the Times Higher Education ranking. To adapt to a rapidly changing world, the University of Nantes has re-invented its model. This model places the student at the heart of its ambitions and focuses on interdisciplinary to promote innovation and success. With its dynamism, fighting spirit, creativity and cohesion, the University of Nantes has all the assets required to foster local, national and international collaboration.

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