SUPERPANELS / Who

#	Research Group	Department	Entity	City Country	Short Name
1	ælab / vibrations and acoustics group	Aerospace Engineering	University of Naples "Federico II"	Napoli Italy	DIAS
2	Dynamics Group	Institute of Sound and Vibration Research	University of Southampton	Southampton U.K.	ISVR
3	Noise and Vibration Research Group	Mechanical Engineering	Katholieke Universiteit Leuven	Leuven Belgium	K.U.Leuven
4	Vibrations and Fluid-Structure Interaction	Mechanical Engineering	McGill University	Montreal Canada	McGill
5	Centre for Advanced Composite Materials	Mechanical Engineering	University of Auckland	Auckland New Zealand	CACM

Contacts

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#2: ISVR / Southampton ⟷ **Prof. T. P. Waters**

#3: K. U. / Leuven ⟷ **Prof. Wim Desmet**

#4: McGill / Montreal ⟷ **Prof. Marco Amabili**

#5: CACM / Auckland ⟷ **Prof. Debes Bhattacharyya**

SUPERPANELS

Strengthening and **U**pholding the **P**erformances of the new **E**ngineered **R**esearch **PANELS**

PEOPLE - MARIE CURIE ACTIONS

International Research Staff Exchange Scheme (IRSES)

SUPERPANELS / What

Panels are ubiquitous components of engineering structures such as cars, aircraft, boats and buildings. The panels often dominate the overall performance of such structures, whether in terms of noise transmission and radiation, vibration, stability, stiffness or strength. A great deal of effort has been spent in the mechanical engineering fields in order to conceive new panels with improved static and dynamic performances. This is motivated primarily by the search for innovative design solutions specifically tailored for facing the problems of transportation engineering, where the vehicle requires a design with high stiffness, low weight, low noise and low cost.

The SUPERPANELS project will co-ordinate five different international research groups with high levels of expertise in panel analysis and activities in the fields of automotive, aerospace, naval and railway transportation. The process of exchanging researchers and co-ordinating activities will allow the specific expertise of each group to be enhanced, enabling improved and faster selection and development of novel panels, configurations and materials. The range of properties and constructions of existing panels is very large and numerous opportunities are offered by new technologies. However, knowledge of the behaviour of the panels is still limited and requires research actions to allow them to become applicable in general engineering. Furthermore, from the consortium members' previous activities, there are innovative methods that have been developed over recent years, arising from an increase of the knowledge about predictive structural and structural-acoustic tools. These are contributing to major advances and will enter common engineering practice in the near future.

In this project novel methods will be extensively used, tested and verified against specific measurements of the predicted and expected performances of the (super)panels. Several candidate solutions will be suggested and motivated at the beginning of the project. The results will qualify how and where the specific performances have been increased without penalties for any of the other standard requirements. The main attention will be devoted to assurance of the compliance with the static requirements and to improvement of the dynamic and vibro-acoustic performances. Other emerging requirements as the flammability will be also investigated.