



No to Noise

Project Mid-Frequency Analysis in Vibration and Acoustics, no to noisy industry, yes to unparalleled research and EU competitiveness.

Noise and vibration levels must remain within safe limits for the sake of human comfort. So, how does one combine this environmental imperative with the industry's need for robust, optimal, efficient vehicle design?

With the ambitious aim to achieve a critical mass of research effort previously unparalleled anywhere in the world, Project CAE Methodologies for Mid-Frequency Analysis in Vibration and Acoustics may be the answer.

Within the EU FP7 Marie Curie Initial Training Network, the MID-FREQUENCY ITN project is eyeing effective and efficient vibration and acoustic analysis with modelling tools and design methods required to produce world-leading products with good noise and vibration performance. It has a potential to ensure the competitiveness of EU industry while building up and disseminating mid-frequency knowledge to the larger EU community.

This project is in-line with an increasing trend towards virtual design and prototyping, to reduce costs and development times through new tools. Ideally such tools would be applicable over the whole frequency range of interest, which is the audio-frequency range for automotive and aerospace structures, for instance. In practice, specific methods are applicable in a limited frequency region.

Substantial challenges exist in this "mid-frequency" range. New analysis approaches are essential to produce world-leading products. Finite element analysis (FEA) is a "low frequency" method which is both well developed and well established. At "high frequencies," statistical energy analysis (SEA) is a valuable but less established tool. There is, however, a "mid-frequency" gap in our modelling capabilities: too high for FEA, too low for SEA.

This is important as it strongly affects product performance and competitiveness, and forms the target for this MID-FREQUENCY ITN project, bringing together academic and industrial beneficiaries who together will host researchers, drawing together skills and expertise in a range of different technical approaches.

The industrial beneficiaries bring specific applications, behind which are generic difficulties associated with the mid-frequency range. The academic beneficiaries provide various

potential research approaches and the capability of research training, provision of courses and dissemination to the wider community.

Together they can develop and promote research, knowledge and application of mid-frequency vibration and acoustics analysis techniques within EU industry.

For more on this go to: <http://www.midfrequency.org>