

## **ALTERNATIVE MESHING STRATEGIES FOR ACOUSTIC RADIATION: A CASE STUDY**

**Anastasios Sarridis<sup>\*</sup>, Evangelos Daviloudis, Michael Tryfonidis**  
BETA CAE Systems SA, Greece

### KEYWORDS –

Acoustic radiation, meshing, wrap, intersect approach

### ABSTRACT –

With the comfort standards in automobiles significantly increasing during the recent years, in even the smaller classes, customer expectations on acoustic performance has also increased. In addition, with traffic noise considered an environmental health issue, regulations on noise emission limits also mandates the creation of quieter vehicles.

Vehicles have a number of noise sources, such as the engine, the tires, the brakes, and the cooling fans. Noise is in most cases a result of vibrations and is radiated acoustically both into the interior and the exterior of the vehicle.

The challenge to reduce noise, while at the same time increasing competitiveness by reducing costs and saving time, has made manufacturers to involve simulations on acoustic radiation in the very early designing stages of components subjected to dynamic loads. These CAE-processes offer great assistance in reducing the need for creating physical prototypes, and same time offer the ability to conduct numerous experimentations and assessments.

In this paper, three modelling methodologies for the acoustic radiation analysis setup of a powertrain will be presented and compared to each other: 2 of them are an approach of the structural component (wrap-based methodologies), while the other is an exact representation using the original mesh as a reference. The target is to compare them as meshing strategies as well as of the respective benefit that they provide in terms of simulation results.

---