



Vibroacoustic Design Optimization of Auxetic Sandwich Panels

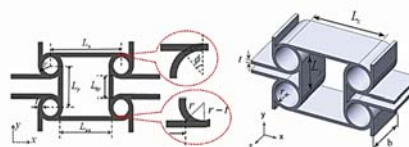
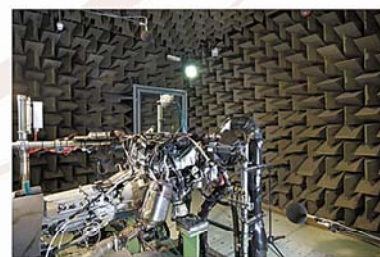
Presenter: Dr. Mostafa Ranjbar
Ankara University, Turkey

Date & Location:
Saturday 1396/02/16, 14-16 pm,
Amphitheater room, Faculty of Mechanical Engineering
K. N. Toosi University of Technology

The work describes the vibroacoustic behaviour of anti-tetrachiral and auxetic hexagonal gradient sandwich panels using homogenized finite element models to determine the mechanical properties of the auxetic structures, the natural frequencies and radiated sound power level of sandwich panels made by the auxetic cores. The mechanical properties and the vibroacoustic behaviour of auxetic hexagonal sandwich panels are investigated as a benchmark. The radiated sound power level of the structure over the frequency range of 0–1000 Hz is minimized by modifying the core geometry of the gradient auxetic sandwich panels. Several excitation cases are considered. First-order and random optimization methods are used for the minimization of radiated sound power level of the structures. The results of this study present significant insights into the design of auxetic structures with respect to their vibroacoustical properties.

About the Speaker:

Dr. Ranjbar got his BSc from Shiraz university. Also, he got his MSc from Tarbiat Modares University in the area of Vibration Signature Analysis in Time and Frequency Domains. Then he worked for several years in Irankhodro Research and Development Centre. Later, he finished his PhD in Technical University of Dresden in Germany in the area of Vibroacoustic Design Optimization of Structures. He has done several joint projects with many industrial, research and academic centres around the world like Rolls Royce Aeroengine plc, Vibroacoustic Consortium in University of Kentucky and AUDI AG in the area of multidisciplinary design optimization of structures with respect to their vibration and acoustics properties. He is an Associate Professor in TC Ankara Yildirim Beyazit University in Turkey.



نشانی دفتر انجمن :