

Modal damping as index of structural quality

Sofia D. Panteliou
University Of Patras, Greece

It is known that damping plays an important role in technical practice. Coulomb (1784) (Memoir on Torsion) describes experiments where damping in torsional vibrations is due to material defects. Besides, according to Lazan (1968) damping is important for many load types. Our previous research findings strengthened our belief that that Modal Damping Factor (MDF) can be used as an indicator of structural changes, specifically, changes in porosity and crack propagation. We developed method for structural integrity assessment, including analytical and experimental tool for calculation and measurement of MDF. In this work, the use of MDF, as structural quality index, is presented, with applications on structures made out of conventional and advanced materials, including bones. The proposed tool can be extensively used as an advantageous monitoring tool of structural integrity, in a wide range of applications, mechanical and biomedical.

panteliu@mech.upatras.gr