Quantification of error estimation of modal damping by a perturbation method

Mohamed Krifa[a], Noureddine Bouhaddi, Gaël Chevallier, Scott Cogan
DMA FEMTO-ST

a. mohamed.krifa@femto-st.fr

Résumé : *The challenge of this study is the evaluation of the damping in structures with localised dissipations. Proportional damping is usually assumed even if it provides inaccurate results when compared with damping of real structures. Bearing this in mind, we present in this research a thorough study which was performed to investigate the validity domain of some classical methods in the case of localised dissipation. To achieve this goal, a perturbation approach in the steady state regime under harmonic excitation has been proposed. While validity of the approach is confirmed, the effects of the coupling terms in the damping matrix is shown. This method helps to quantify a posteriori the error induced by modal damping assumption.*

Mots-clés : Modal damping, perturbation method, jointed structures.