

Acoustic Finite Element Analysis of a Slit Model with Consideration of Air Viscosity

Authors : M. Sasajima, M. Watanabe, T. Yamaguchi Y. Kurosawa, Y. Koike

Abstract : In very narrow pathways, the speed of sound propagation and the phase of sound waves change due to the air viscosity. We have developed a new Finite Element Method (FEM) that includes the effects of air viscosity for modeling a narrow sound pathway. This method is developed as an extension of the existing FEM for porous sound-absorbing materials. The numerical calculation results for several three-dimensional slit models using the proposed FEM are validated against existing calculation methods.

Keywords : simulation, FEM, air viscosity, slit

Conference Title : ICBB 2014 : International Conference on Bioinformatics and Biomedicine

Conference Location : Istanbul, Türkiye

Conference Dates : May 22-23, 2014