Virginia Silva Araujo Monteiro et al., Adv Automob Eng 2018, Volume 7
DOI: 10.4172/2167-7670-C1-012

3D FE model for the acoustic analysis of an automotive muffler with glass wool

Virginia Silva Araujo Monteiro and **Ivan Menezes**
Pontifical Catholic University of Rio de Janeiro, Brazil

A three dimensional finite element (FE) model is presented to compute the acoustics effect and transmission loss of a muffler considering glass wool. The proposed model comprehends a puzzle of state of art research models on poro-acoustics, pipe perforators, baffle perforators, and plane wave acoustics. The muffler considered comprehends four resonator chambers, and Silentex 2000 glass wool on the second chamber. Temperature influence in transmission loss is presented. Bench tests were used for model validation. Transmission loss results are compared with 1D analysis in GT Power.

Biography

Virginia Monteiro Silva Araujo Monteiro pursued her PhD in structural analysis and strength of materials (2013) at the Polytechnic University of Catalonia, Barcelona, Spain. She was a Research Fellow in the Department of Solid Mechanics of the Royal Institute of Technology in Stockholm, Sweden. From 2015, she joined Pontifical Catholic University of Rio de Janeiro as a Research Staff and is currently a Technical Coordinator in a Lightweight exhaust system project, a collaboration with FCA (Fiat Group Automobiles), Brazil and Coventry University, UK. Her research themes include: automotive, oil and gas, and biomechanics models and simulations.

virginiamonteiro@yahoo.com