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**A global search tool for the equivalent source method and its  
applications to the scattering problem**

Yves J.r. Gounot and Ricardo Musafir  
UFRJ / COPPE, Universidade Federal do Rio de Janeiro, 21941-972 Rio de Janeiro, Brazil

Low computational-cost solutions to the acoustic scattering problem can be obtained with the equivalent source method (ESM), provided the sources are adequately positioned. Because this last point represents often a complicated task - mainly responsible for the not much widespread use of the method - a technique that hurdles this difficulty, called ESGA, has been previously proposed (Gounot & Musafir, *Internoise* 2004). Based on a combination of genetic algorithm with ESM, the ESGA is a global search tool that provides, given a set of monopoles, their 'optimal' positioning and complex amplitudes. The technique efficiency is here shown through a number of three-dimensional scattering problems. The algorithm is also used in order to identify, for each of the different cases considered, typical geometrical arrangements of monopoles which provide good solutions.