

Source Modelling Toolbox

The Source Modelling Toolbox is a collection of Matlab functions for designing FDTD source excitation signals and source functions. It is associated with the following paper:

J. Sheaffer, M. van Walstijn, and B. M. Fazenda. "Physical and numerical constraints in source modelling for finite difference simulation of room acoustics."

Complete PCS Model:

- function pcsDesign: design a PCS based on a pulsating sphere mechanical filter, and a MAXFLAT pulse shaping filter.

Individual Pulse-Shaping Filters (Excitation Signals):

- function designBH: design a Blackman-Harris pulse.
- function designGaussian: design a Gaussian pulse.
- function designMaxflat: design a MAXFLAT lowpass pulse.
- function designRicker: design a Ricker wavelet.
- function designSineGaussian: design a sine-modulated Gaussian pulse.

Individual Mechanical Filters:

- function designMechSphere: transfer function for a small pulsating sphere.

Documentation for the various functions is self-contained, e.g. "Help designBH" in Matlab.