FBAR Layerstack Simulation using Mason Model

Contents

- Mason model definitions, equations, and closed-form solution
 - Mason model differential equations and acoustoelectric analogy
 - Mason's piezoelectric slab equations
 - o Mason model variables, parameters and units
 - Three-port representation of the piezoelectric layer
- Mason equivalent scheme and impedance matrix
 - Properties of the impedance matrix
 - Particular cases of Mason equivalent circuits for different layer types
- Mason FBAR simulation: theory, algorithms, examples
 - Similarity between SAW and BAW models
 - Cascading algorithms for BAW layerstacks
 - Hybrid transmission matrix (HTM), properties and application
 - Closed-form equations and physical meaning of the HTM matrix terms
 - HTM Block matrix representation
 - HTM for different layer types
 - Mason model cascading for passive and active layers
 - Recurrent layer cascading in the BAW layerstack
- Multilayer FBAR impedance
- Examples of the ADS and MATLAB Mason simulation