ARTIFICIAL REVERBERATION USING A HYPER–DIMENSIONAL FDTD MESH (MonPmOR11)

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**Abstract:**
A hyper–dimensional finite–difference time–domain mesh structure and its application to artificial reverberation modeling is introduced. It is shown to produce reverberation with a dense and irregular modal pattern beneficial for modeling the reverberation in rooms or musical instrument bodies at high frequencies. An example design of a four–dimensional FDTD mesh is analysed. The computational cost of the four–dimensional mesh is shown to be lower than that of a bank of second–order resonators producing the same number of modes.