Ray-tracing provides a scalable method for analyzing room acoustics[1] , though much acoustical behavior is not implicit to this method[2]. A significant increase in computational detail reduces resource based benefits of ray-tracing, compared to a geometrically relevant wave equation method. Though generally computationally intensive, wave based acoustical modelling may be more accurate than ray based methods for room analysis[3]. The Finite-Difference Time-Domain [FDTD] method for Partial Differential equation [PDE] solving presents a highly parallelizable[4] way of modelling room acoustics. FDTD generally requires full discretization of the geometric domain, and can be computationally intensive. A potential area for new research may be the implementation of a sparse matrices based FDTD implementation[5]. This would imply using a moving window or mesh analogy to compute the relevant acoustic reflections for an impulse response to be calculated.

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