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Subject: Re: Computer Simulation of Room Acoustics

Posted by [Ulrich Franz Thomanek](#) on Sat, 25 Mar 2006 09:30:54 GMT

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Dear Mr. Parham and Dr. Geddes, As the chief developer of CARA (Computer Aided Room Acoustics) I want to clarify the mathematics implemented in CARA. Dr. Geddes states: "CARA is a ray tracing program. It will not be able to do the LF modal study. Ray tracing methods do not retain phase and as such do not correctly predict standing waves. They only work above the modal region, not below it. "CARA is not a ray tracing program! If CARA was a ray tracing program then Dr Geddes would be right. But CARA is based on a model using sound source images and therefore calculates the total sound field (direct and diffuse) with complex numbers (magnitude and phase). I ask Dr. Geddes and all others interested in this subject to try the "CARA Walkthrough" on [www.cara.de](http://www.cara.de). CARA correctly predicts the modal structure of the room sound fields. CARA focuses on the room acoustics of small rooms and we pay very particular attention to correctly calculating the room modes because these are relevant for all frequencies up to several hundred Hz. Best Regards, Dr. U. Franz Thomanek  
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