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Analysis of uncertainty in building acoustic predictions using Monte-Carlo methods

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One of the most common tasks in architectural acoustics is the prediction of the acoustic performance of some aspect of a building, such as the background sound level of a room, the reverberation time of an enclosure, or the sound transmission of a wall construction. The accuracy of a prediction is not only dependent upon the computation model, but also upon the accuracy of the data of the model. Because of the complicated, non-linear interaction of various inputs, assessing the accuracy of a prediction can be difficult. One way to provide more accurate predictors and estimate the error in the prediction of complicated, multiple input systems is to utilize the Monte-Carlo method. In this talk, the application of Monte-Carlo methods to building acoustic predictions is presented.