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Is Acoustic Finite Element Analysis the answer to our prayers?

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Although the technique of Finite Element Analysis (FEA) has been available for many years, it is only recently that acousticians and audio engineers have been able to benefit from its potential. Historically FEA has been confined to the domain of academic institutions and multinational structural engineering corporations. Now Acoustic FEA software is commercially available - indeed there are an increasing number of competing systems, which encourages rapid advances and can only be good for the acoustics industry.

Historically the method has suffered something of a credibility problem with engineers, due to the difficulty of obtaining theoretical results which correlate well with reality. However, there is a growing body of evidence showing that the FEA method and software have matured to the point where careful use can produce dramatic savings in design time. The presentation will show the high degrees of correlation that are now being achieved.

The aim of the presentation is to assess the benefits and dangers of embracing Acoustic FEA as a design and analysis tool, drawing on experience gained over several years studying loudspeakers and rooms. It is very likely that, as software and hardware improves, there are few among us who will not cross paths with Finite Element Analysis. The technique can be applied to many areas of acoustics and offers exciting possibilities for us all.

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