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Low frequency sound absorption measurements - limits and ideas

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Many (standardised) measurement procedures for sound absorption rely on geometrical approximations or statistical approaches. They fail whenever the limit of geometrical acoustics is reached. Also many room acoustic modelling procedures assume geometrical spreading of sound and neglect the wave characteristics of sound waves. In this paper various approaches towards the measurement of sound absorption are briefly reviewed and discussed in the light of low frequency applications.

Approaches towards analytic descriptions for sound fields in room at low frequencies from the early 1930s are reviewed. The approaches might be the bases for future developments on new procedures for measurement techniques. Finally measurement results on the deduction of sound absorption at low frequencies are presented.