



PRESENTS

SOUND STRENGTH IN SMALL HALLS

by Jerald Hyde and Henrik Möller

Introduction

A major acoustical challenge in designing large concert halls has been to create a large room that nevertheless sounds acoustically "intimate" and in essence for it to sound smaller than it physically is. Research over the past several decades has indeed been aimed at determining what factors relate to Acoustical Intimacy and to finding architectural correlates which provides adequate loudness, reverberance, and spatial impression in large occupancy halls.

The subject of this paper turns the large hall problem upside down. Here, we analyze the situation of a low occupancy concert hall which must accommodate a full orchestra, perhaps even with choir. Such a space for the purposes of this discussion is less than 1000 seats, down to as low as around 400 seats. The acoustical challenge is to make a "small hall" and make it sound like a large one. While such a space might be termed a "chamber hall", it will nevertheless require extraordinary physical solutions when it presents a full orchestra, e.g. playing Bruckner or Mahler.

In summary, the acoustical success of large concert halls hinges on the ability to provide intimate sound, with the impulse response of a smaller space, including adequate sound strength. The success of a small occupancy hall for the same large orchestral source requires making the hall sound appropriate to the nature of the source, which in part means that it not be too loud while at the same time preserving the reverberation characteristics known to be preferred. [Continue to full paper](#)

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