The Acoustics of a Room

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In a classroom, even if we are close to the teacher or speakers, we do not listen optimally. For this reason, it was proposed to study the acoustics of a room, wondering if is there a relationship between a sound source and the different distances from it, having as hypothesis that, the further away from the sound source, the acoustic pressure would be lower. For this, we worked in two classrooms with different shapes, to see their sound distributions; one of these was measured with and without furniture. Easy applications and software were downloaded. The space was discretized, to measure the acoustic pressure at each point of the sound plane. These were built with the frequencies of 43, 65 and 601 hz for classroom A, and 100 and 134 hz for classroom B. In the analysis, there were points that, although being far from the sound source had a high sound pressure, and zones with lower acoustic pressure being close to the sound source, being this phenomenon produced by interference. The shape of a room does modify the variation of acoustic pressure and interference, since the more irregular the structure is, the more irregular the interference patterns that we would find in it. It was concluded that the hypothesis is partially rejected, since the variations in the acoustic pressure do not occur because the distance increases, but, due to the phenomenon of interference, it is possible to know how the auditory space that we can never see would be.

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