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**Acoustic source identification in an enclosed space using the
inverse phased beam tracing at medium frequencies**

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When the source is enclosed by room surfaces, it is not easy, not totally impossible though, to apply conventional modal methods for source identification. This is because there are too much complicated wave interference and effect of wall impedance, in particular at medium frequencies. The phased beam tracing method was suggested as a fast and efficient acoustic simulation tool at the medium frequencies in an enclosure, which overcomes the defects of geometrical acoustics techniques. In this study, the phased beam tracing method, implemented in its inverse form, was applied to the identification of the acoustic sources inside a chamber. In the simulation tests, spherical and rectangular shaped sources operating in a room were taken as examples. When the source pressure distribution was reconstructed by this numerical inverse technique, the sound power spectrum radiated from the source could be estimated by eliminating the contribution from surface reflections. Reconstruction error was investigated by the Monte Carlo simulation in terms of the signal-to-noise ratio.