

**ACOUSTICS2008/1661**  
**The influence of the source directivity on the measurement uncertainty**

Renzo Vitale and Ingo Witew  
Institute of Technical Acoustics, Templergraben 55, 52056 Aachen, Germany

Modelling can play a key role in assessing the measurement uncertainties, as specified in the "Guide to the expression of Uncertainty in Measurements" (GUM). A model is presented that is used to quantify the influence of the source directivity on the measurement uncertainty. On the grounds of image sources and radiosity methods the propagation of sound in rooms is simulated. In this model the characteristics of dodecahedron sound sources are implemented with their statistical properties and characteristics. In Monte Carlo Simulations these two core concepts are combined and the results are compared with measurement results. This comparison allows a quality assessment of the model. In a conclusion the input quantities that affect the measurement uncertainty that is introduced by the source directivity are identified.