1 Introduction

The present work is intended to virtual reproduce the acoustics of Bayreuth Festspielhaus (BF). A geometrical model of the theatre is available, including the material properties found after calibration procedures based on measurements done in 2014, September. A whole virtual orchestra of about 110 elements and a loudspeaker orchestra (and soloist/choirs) was simulated in Odeon v.12. BRIRs for 3 receivers in the stalls of BF were calculated with and without the audience. The material is freely available for academic uses.

2 Files

The present folder contains:

- bayreuth.skp CAD model of the theatre. Theatre has been shaped with reference to previous literature on historical theatres [8].

- materials.xls excel file including list of absorption and scattering coefficients. Material properties have been set according to literature [9, 10] or measurements done by the authors in historical theatres [11].

- BRIRs of the simulated instrumental orchestra of about 111 elements, three soloist and a choir of 10 persons. Instrumental directivities from Odeon v.13 have been used. Following rendering options were used: Number of rays 8000, Impulse response resolution 3.0 ms, Transition order 2, according to previous literature [5]. The impulse responses were exported in headphone rendering for binaural reproduction. The theatre was simulated both in unoccupied (subfolder unoccupied) and occupied conditions (subfolder occupied) for 3 receivers on the stalls (see figure for receiver positions). The theatre was simulated also in the original configuration (1874), without the shell between the orchestra pit and the stage, in occupied condition only.

- sources.xls list of sources used in the BRIRs rendering.
3 Copyright

All individual audio tracks of this work (.wav format at 44.1 kHz/24 bit) are freely available for academic uses, referring to the bibliography [1]. Please contact the authors for other kind of use.

4 Acknowledgements

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References