

27 2064

Paper no. 4pPAa12

Session: Thursday, March 18, Afternoon
Time: 6:00 pm

Acoustic Photo- and Cinematography basing on the H-Interference Transformation (HIT)

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Abstract

A time-domain technique is introduced to localize far and moving acoustic objects. The basic algorithm is called "Heinz Interference Transformation" (HIT). It reproduces mirrored (optical) projections just as nonmirrored reconstructions of different sources depend on the direction of time axis. Based on time-domain calculations, the introduced method reproduces an approximation for different source points in a grid matrix, arranged in a virtual space or array or field in physical dimensions of the measured scene. It is possible to reconstruct acoustic single-time events to cinematographies (movies). Maximum image rate is the sample frequency of time functions. Independent of the integration interval, it is possible to reconstruct in cinematographies the wave field or movies. Properties of HIT, influence of time functions' properties and channel number, different algorithmical tasks, relations between time and space, aliasing and reconstruction parameters are discussed as examples.
[Work supported in parts by German BMWi, Marktvorbereitende Industrieforschung.]
(see also URL http://www.gfai.de/www_open/perspg/heinz.htm).

See also: <http://forum99-asa.tu-berlin.de/>
<http://asa.aip.org/web2/asa/abstracts/search6/asa1471.htm>

Quotation

Heinz, G., Döbler, D., Nguyen, T.: Acoustic Photo- and Cinematography basing on the H-Interference Transformation (HIT). ASA'99: 137th meeting of the Acoustical Society of America, 2nd Conv. European Acoustics Ass. and 25th German Acoustics and DAGA Conference at TU Berlin, Germany, March 14-19, 1999. Abstract in: Acta Acoustica - the journal of the European Acoustics Association, p. S363, paper 4pPAa12, S. Hirzel Verlag, Suppl. 1, Jan/Feb. 1999, Vol. 85. ISSN 1436-7947

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