

acoustic S.T.ONE

ACTING OUT
PASSERÀ L'ACTE
PASSARE ALL'ATTO

ZUM AKT



omnidirectional points of listening

The **S.T.ONE** project grew up from the need of an electroacoustic environment in which acoustical and electronic instruments have the same impact on listeners. The first stage of development involved a spherical sound diffusion technique of acousmatic music (EMUFest 2014) while a research path concerning the *Sound Shape* of traditional instruments was taking place. The *Sound Shape* is the perceived shape of an acoustic object. During the recording of *13 Degrees of Darkness* (A. Lucier, for and pre-recorded flute, performed during EMUFest 2014) the **TETRAREC** technique for *Sound Diffusion* recording of acoustical instruments was developed. Through **acoustic S.T.ONE** it is possible to read about state of the art research and to listen to instruments which are both recorded and analysed to describe their *Sound Diffusion*.

TETRAREC



Figure 1: first TETRAREC session - september 25, 2014. Alvin Lucier, *13 Degrees of Darkness*. Elena D'Alò, flute.

TETRAREC is a spaced microphone technique which consists in surrounding the complex sound object (musician plus instrument) with four microphones, each at the vertices of an ideal tetrahedron.

The **TETRAREC** technique took its inspiration from Michael Gerzon's *A-Format* (four coincident microphones placed along the sides of a tetrahedron). The difference between the two techniques are the distance (coincident vs. spaced) and the purpose (3D reproduction of music/environment vs. 3D reproduction of acoustic objects)

Main Objectives

The **TETRAREC** technique was developed to achieve the following objectives:

1. Capture the *Sound Shape* of acoustic instruments
2. Preserve the body shadow on sound propagation
3. Preserve the movements performed by the musician
4. Collect data on *Sound Shapes* of different acoustic instruments
5. Collect data on *Sound Shapes* of similar acoustic instruments with different performers
6. Analyse data and prototype a graphic visualisation of 3D *Sound Shapes*

Forthcoming Research

The largest corpus of contemporary music for solo instruments is represented by Luciano Berio's *Sequenze*. In this research about recording *Sound Shapes* through the **TETRAREC** technique while diffusing them by S.T.ONE, where instrument performances are displayed over printed maps which are then used to improve their musical listening, a *Sequenza* could focus the listener's attention on every nuance of the *Sound Shape*. At the same time reproducing a complex sound object like a musician performing a *Sequenza* (which very often implies a complex panoply of 3D movements) is the best possible research goal for a loudspeaker.

acoustic S.T.ONE - Track List

- *Density 21.5* - Edgar Varèse - flute Elena D'Alò
- *improvvisazione* - Bayan - Alessandro Sbordoni
- *Sequenza IXb* - Luciano Berio - Alto Sax Danilo Perticaro
- *Suite for toy piano* - John Cage - Toy piano Francesco Ziello

