

Development of a dynamic calibration system for Piezo-film unsteady pressure sensors

For experimental aerodynamic investigations in wind tunnel facilities, unsteady pressure measurements are of great importance, especially in supersonic flows. One of the challenging aspects of such measurements is the correct calibration of the sensors used.

Thus, the scope of this final thesis is to choose, design and manufacture the proper dynamic calibration system for calibrating a novel Piezofilm sensor array (figure 1), to be used inside a supersonic wind tunnel for Shockwave-boundary-layer-interaction investigations.

Tasks:

- Evaluation of the proper calibration setup
- Design and manufacturing of the system
- Calibration of PVDF piezo-film sensor array
- Evaluation and discussion of calibration data

Required knowledge: CAD, experimental fluid mechanics, data analysis with MATLAB/Python

Masterarbeit

Contact: Cosimo Corsi (cosimo.corsi@tu-berlin.de)

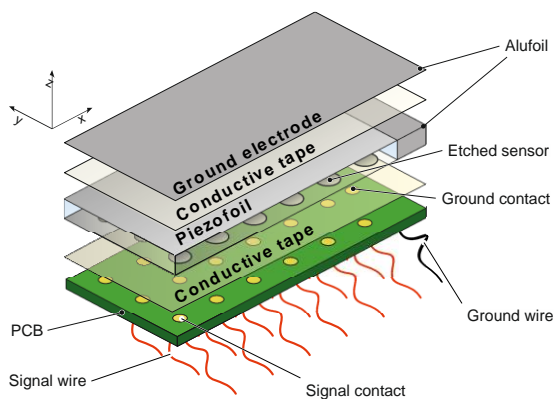


Figure 1: Schematic representation of the Piezo-film sensor array

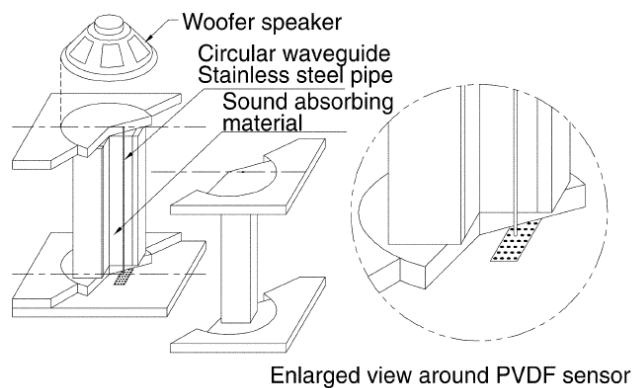


Figure 2: Speaker dynamic calibration setup [1].

[1] Lee, I., and Sung, H. J., "Development of an array of pressure sensors with PVDF film," *Experiments in Fluids*, Vol. 26, No.1/2, 1999, pp. 27–35.