

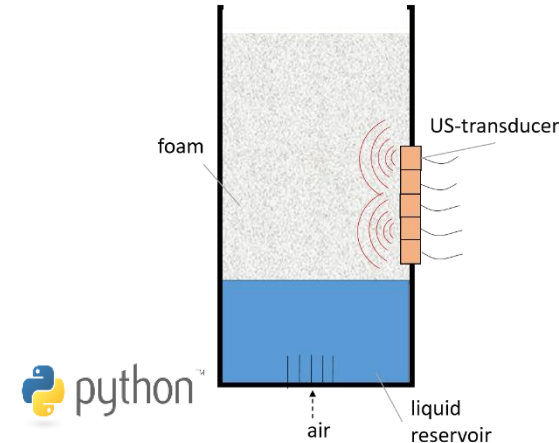
## *Sound field characterization of a low frequency ultrasound array in foam*

### Motivation

Gathering in situ information from foams is a persistent challenge. Containing multiple phases, the dispersion often attenuates the measurement signal to extinction. Ultrasound in the low Kilohertz range (50...200 kHz) is subject to less attenuation and might enable a control loop for processes as flotation, to enhance the retrieval of resources.

An array of ultrasound transducers has been build to analyze the foam's parameters as liquid fraction or bubble size in two dimensions. However, little is known about the propagation of ultrasound in a highly scattering medium as foam. A thorough analyzes can thus validate the current measurements and open up improvements by new kinds of data processing, transducer drives or array geometry.

Therefore an experimental setup (e.g. with a moveable point reflector) is to be designed and build to collect local sound field information of the array.



### Tasks

- Familiarization with the ultrasound measurement system and scientific Python
- Design and implementation of the experimental setup
- Characterization of the sound field of the ultrasound array

### Keywords

Python, Signal Processing, Experimental Setup, Froth

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