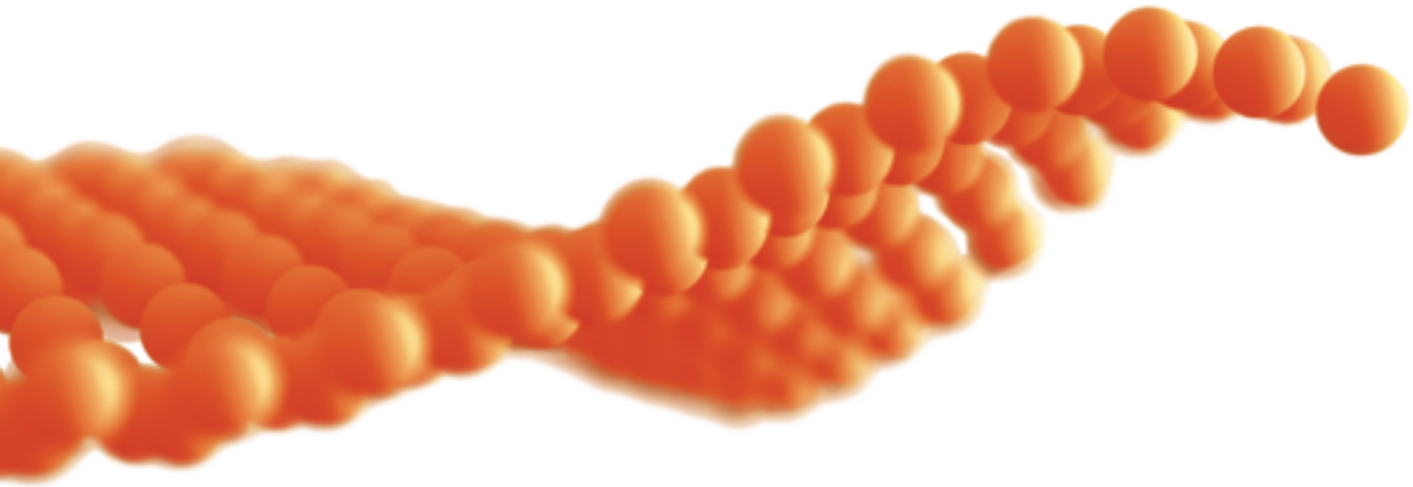

AWSensors
Scientific Technology

CATCH-U-DNA General Meeting

21st May 2010, Valencia, Spain

WP1. Acoustic wave devices and measurement control unit

Objectives and current results

Outline

1. Objectives
2. Main achievements
3. Future plans
4. List of deviations, delays or other problems
5. Questions

1. Objectives

- Chip containing an array of TSBAR sensors
- Measurement system

1. Objectives

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Workpackage structure

2. Main achievements

SENSOR FABRICATION Task 1.2 (M4-M18)

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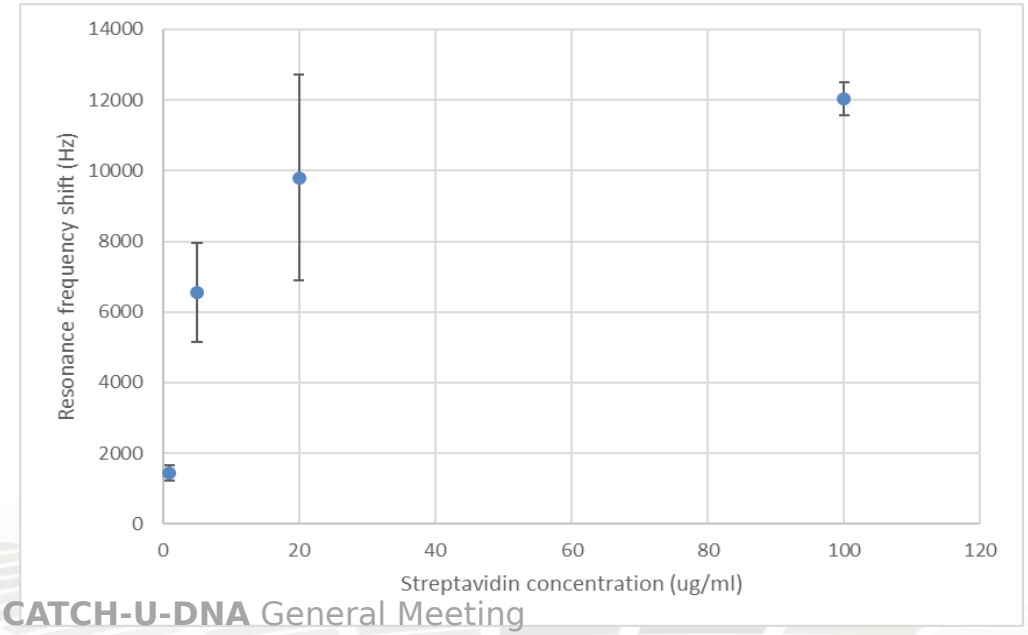
HFEQCM array tested with Biosamples

D 1.2 completed and submitted to the Commission

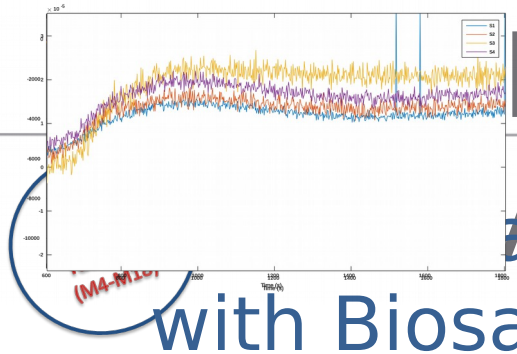
STP concentration(ug /ml)	100	20	5	1
S1	12686	12956	4567	1336
S2	11883,3	5895	6899	1751
S3	11566	10169	6943	1265
S4	12039	10171	7838	1377
Average	12043,575	9797,75	6561,75	1432,25
Std. Dev.	471,34	2914,51	1398,44	217,47

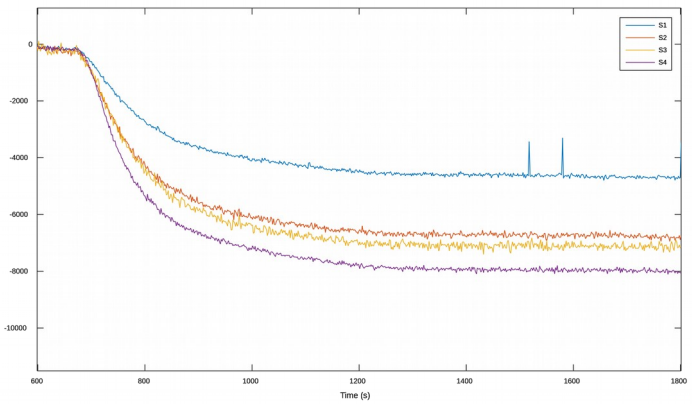


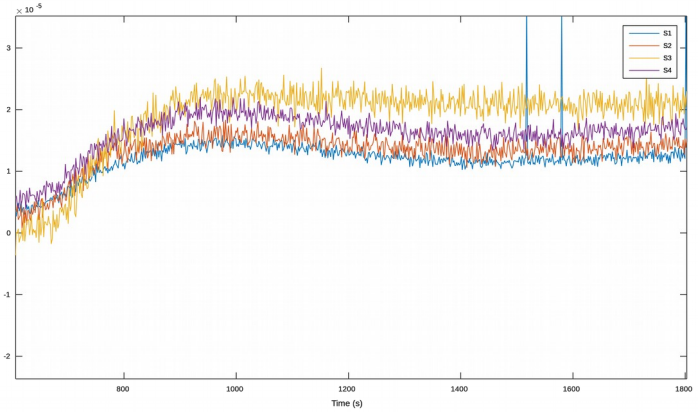
Main

vements

array tested with Biosamples





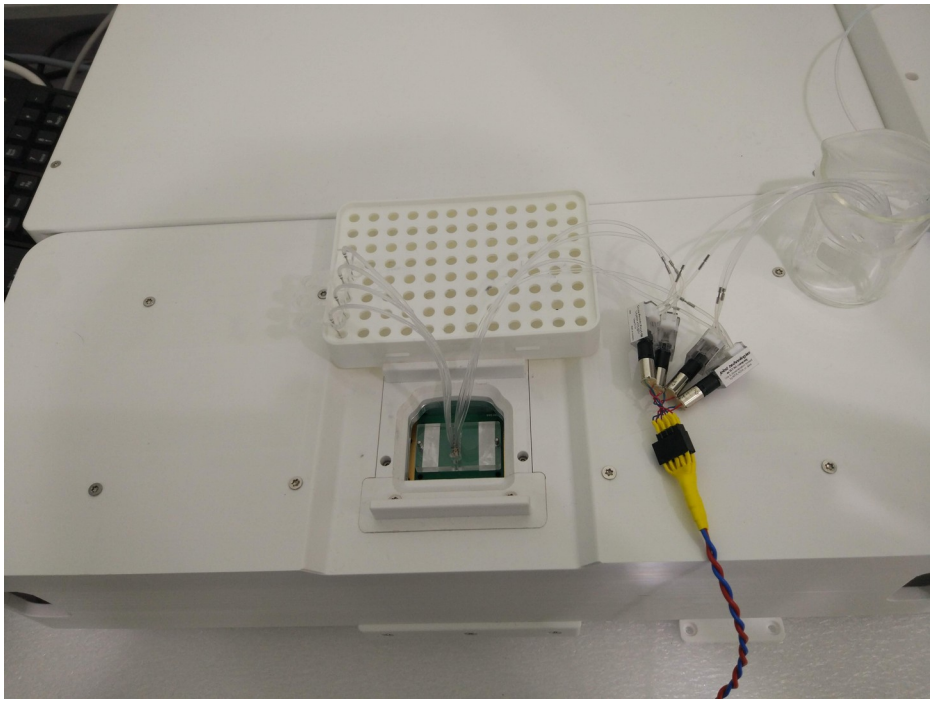


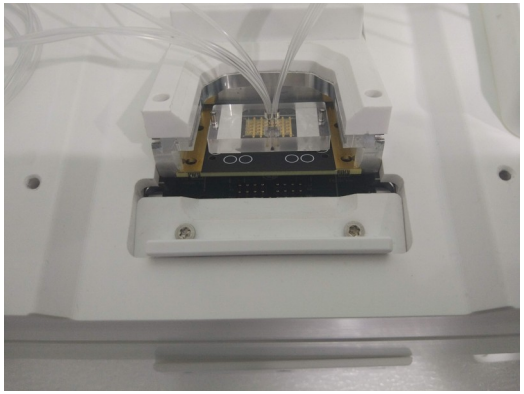
250 ul of Streptavidin (5 ug/ml) injected

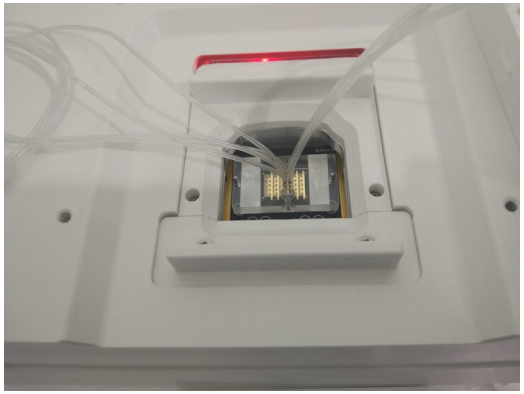
2. Main achievements

MEASURING TECHNIQUE Task 1.3 (M1-M12)

Pre-prototype system released







2. Main achievements

Novel characterization method

Why?

- Objective: Measure multiple sensor response simultaneously
- Accurate measurement of the acoustic ratio
- Calibration issues (complex electronic interface)
- High stability/Low noise
- Wide operation range (Liposomes)

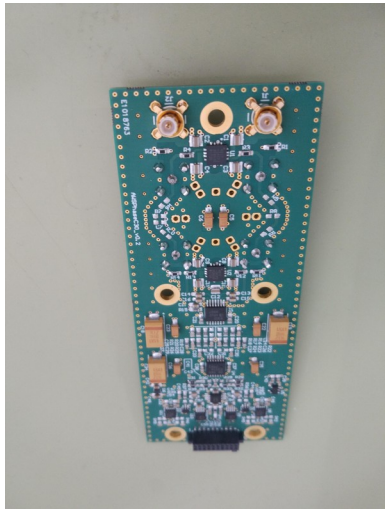
Characteristics & Benefits

- Mixed (Tracking- Fixed frequency) characterization algorithm
- Fast (Multiplexing)
- Accurate
- Wide operation range
- Electrical artifacts considered
- Patent evaluation

2. Main achievements

Novel characterization method Implementation

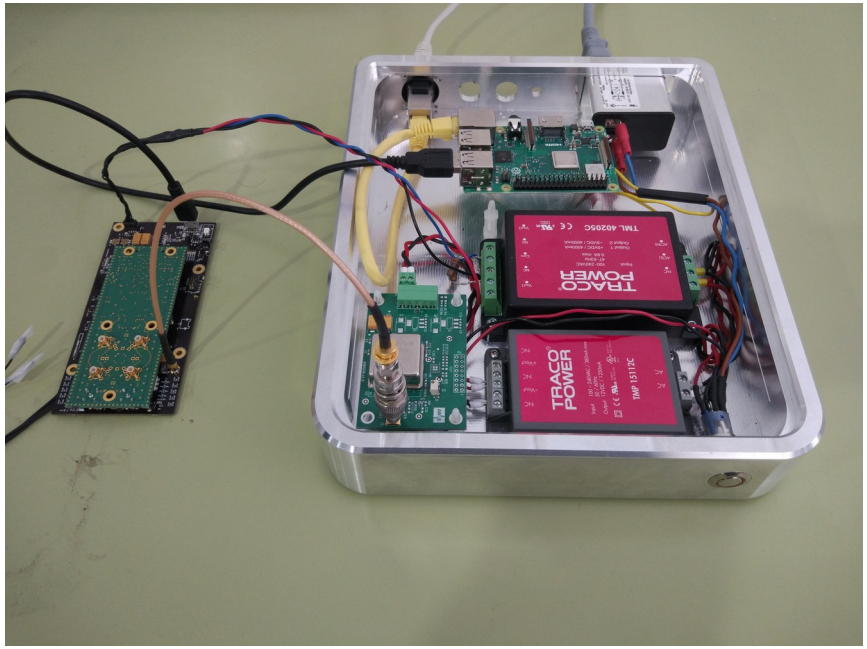
AWSPhase board



- Analog differential measurement interface
- Analog to Digital converters
- Digital acquisition bus

AWSBase board

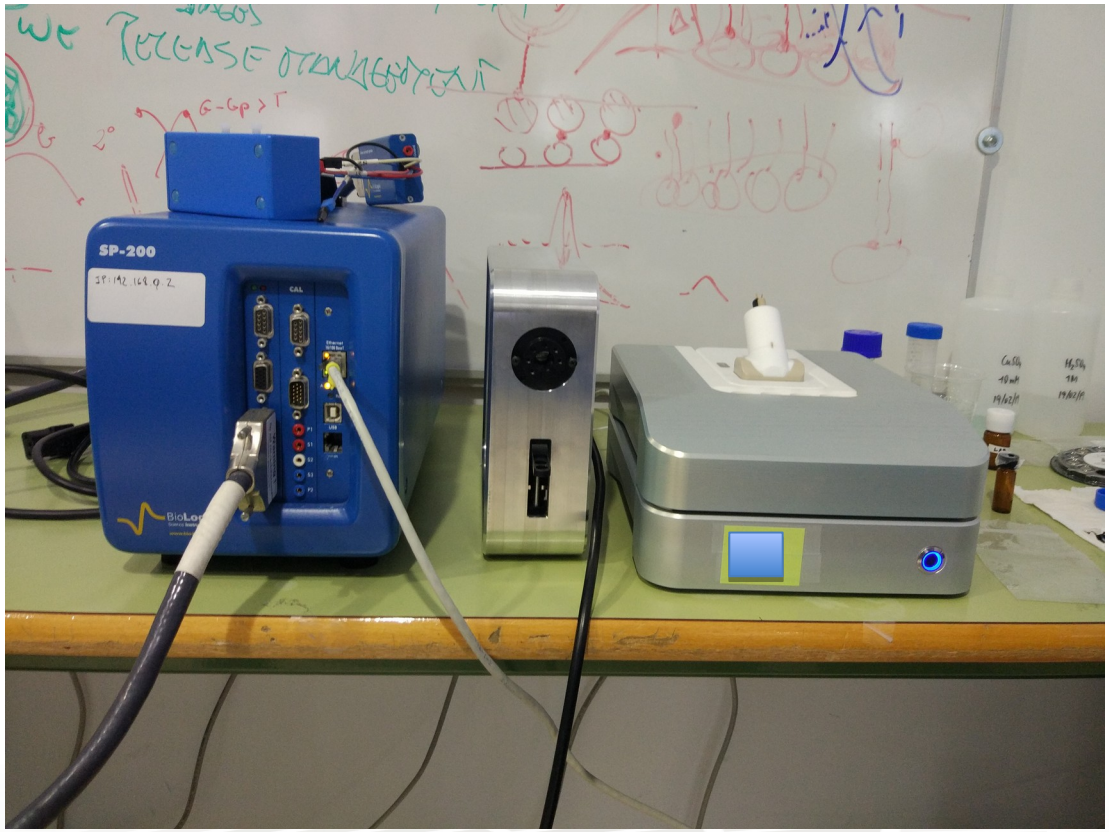
- DDS Signal generation
- Microcontroller. Real-time operation
- Digital acquisition bus
- USB, Bluetooth, Wifi connectivity



2. Main achievements

MEASURING TECHNIQUE
Task 1.3
(M1-M12)

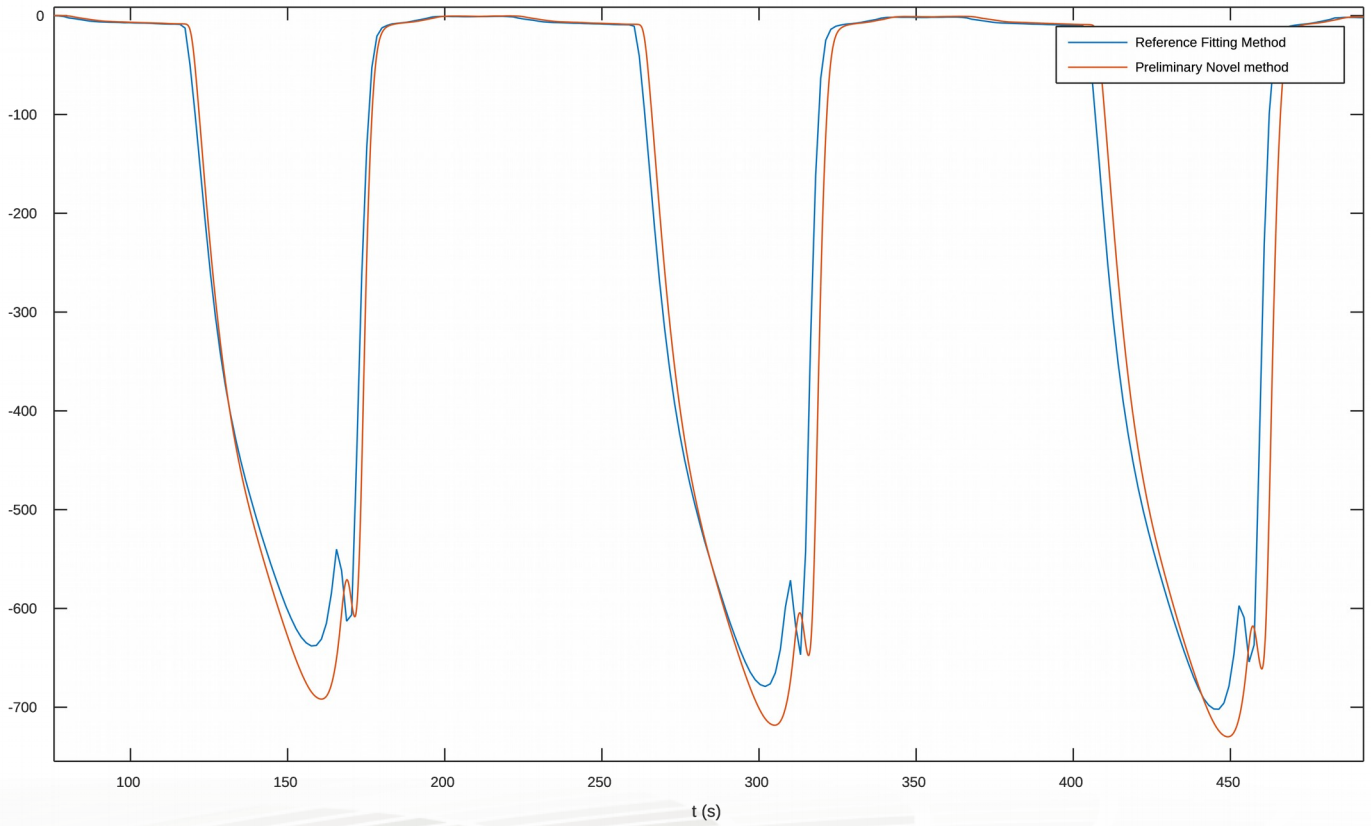
Novel characterization method Implementation--Testing



2. Main achievements

MEASURING TECHNIQUE
Task 1.3
(M1-M12)

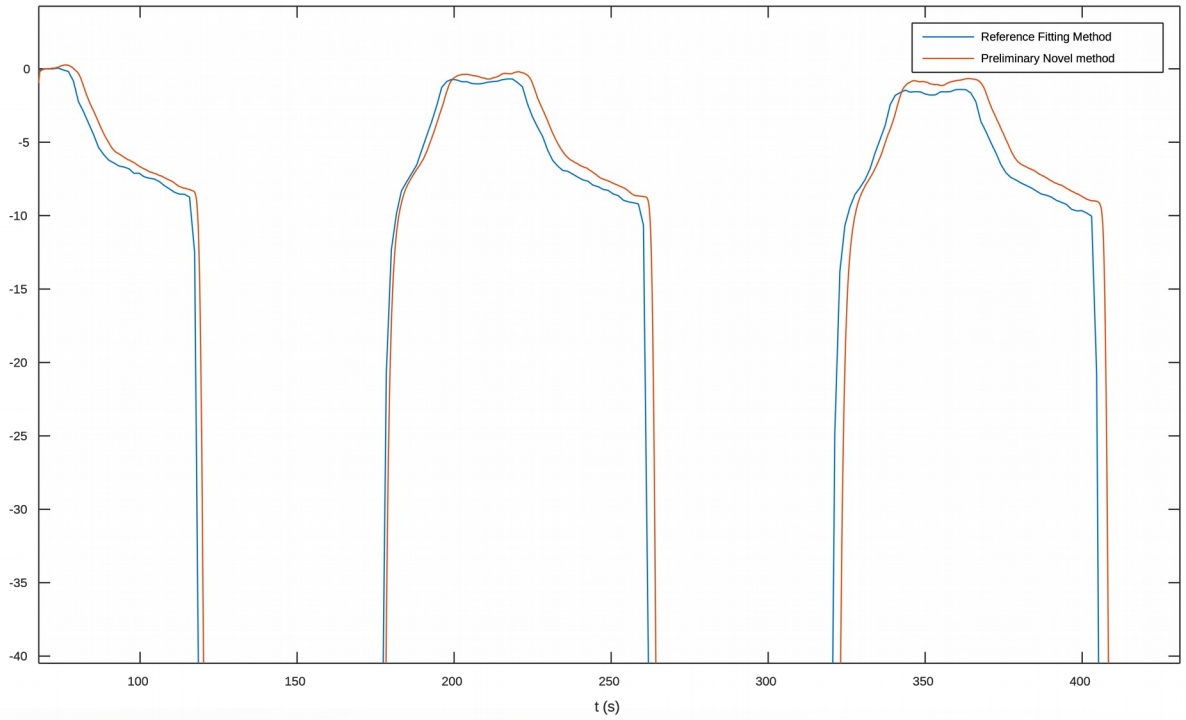
Novel characterization method Implementation--Testing



2. Main achievements

MEASURING TECHNIQUE
Task 1.3
(M1-M12)

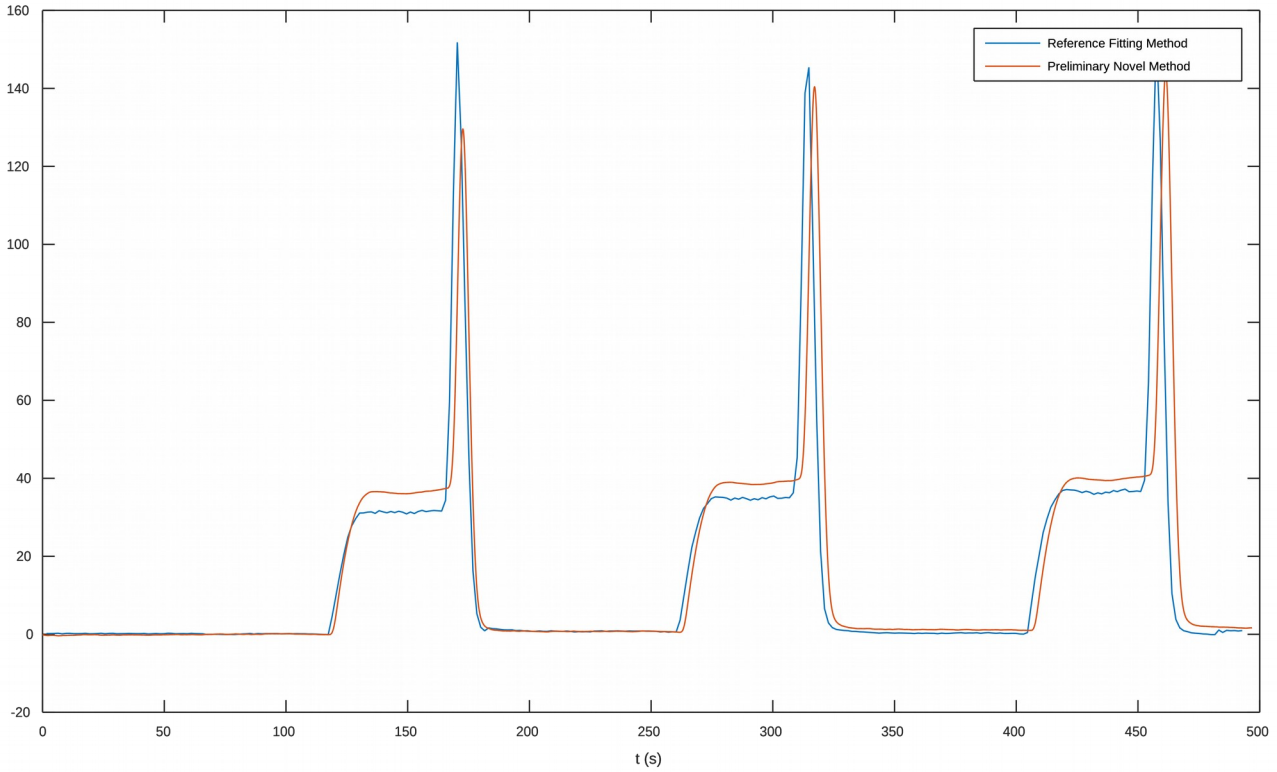
Novel characterization method Implementation--Testing



2. Main achievements

MEASURING TECHNIQUES
Task 1.3
(M1-M12)

Novel characterization method Implementation--Testing



3. Future plans

- Implementation of the final CUDNA array

- Implementation of final CUDNA assembly
- Optimization of the fluidic setup (WP6)

- Further testing of the novel characterization method
- Data post-processing algorithms: Common mode rejection (ICA,CAR, Adaptative filtering…)

5. Questions

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Thank you!