Biomedical ultrasonics, 2013

Course project presentation

Date of the instructions: 8.11.2023

Your course project presentation is a short version of your course project report. This is your opportunity to test your ideas for your course project report and to get feedback. You have a max 5 minutes to deliver your individual presentation + 2 minutes time for feedback. Other students from your course can give you open feedback through Presemo.

1. Literature search, max 1 slide (8 p)

Summarize 1-2 key findings from 1 paper (2p) with key parameters according to the course project instructions (6 p):

The dimensions of the device and the field, frequency, a quantity describing the power (Intensities, be specific which intensity you refer to; Electrical input power; What are the dimensions of the acoustic field; Pressure; Langevin Radiation Pressure; Pulse parameters; Other relevant parameters such as displacement etc.; Main physical ultrasound-tissue - interaction mechanism reported on those papers).

Key characteristics for highest score: 1 papers reported with at least one clear result with physics associated addressed correctly. A list of key parameters outlined above (1p for each parameter). Not all parameters need to be mentioned, but can be mentioned.

2. Lab work & analysis, max. 4 slides (19 p)

Present one short slide which includes the Aims of your experiment (2p), one slide with Materials and methods (5 p), one slide for Results (5p), one slide for Discussion of the results and what nonlinear phenomena may or may not be present (5 p). The discussion should end with one conclusion (2 p).

Key characteristics for highest score: clear and correct aim related to the topic, materials and methods explained in a clear way preferably with an illustration, results demonstrated with SI units with correctly addressed physics (images must contain scale bars). Correct discussion of the results touching 2 or 3 different physical phenomena, of which one was directly observed in experimentation. Clear and correct conclusion. Student shows holistic management of the lab work section.

3. Invent a new biomedical method, max 1 slide (10 p)

Propose a new method and/or device for biomedical use using key aspects you identified in section 1 or 2. The device needs to address a clinical need (2 p). Make an illustration of the device (2 p) and explain how it works (2 p). Explain briefly physics associated (4 p).

Key characteristics for highest score: Real need that the solution combined with its physics could address the need). There is a clear visualization and physics is explained correctly.

Hand-in the presentation slides through the box BEFORE the session of presentations (DL 12:15 on 29.11.).

There is a panel from Medical UItrasonics Laboratory to give feedback.