Student: **Tsakiraki Aggeliki - Kalliopi**

Title of thesis:

Development of design environment for computational models of composite structures for biomedical imaging systems simulation

Summary:

The study on the medical imaging of living beings has led to the need to develop digital phantoms, which represent anatomical and functional structures in a realistic way. For this reason, this paper discusses the implementation of a graphical user interface for the design of such phantoms which can be used in various medical imaging techniques. The user has the opportunity through this interface to create phantoms of complex structures.

There are two models of phantom development. The creation of organs and other particles and the vascularization. Once the stage of phantom's creation is complete the next and basic step is its processing. The user has the option to change the composition and take a visual image of these changes, depending on the technique that acts (e.g. Optoacoustic Tomography which includes absorption coefficients).

The basic requirement is to set the space (wavelengths emitted by the machine for working on technique) and the time to allow the representation of subsequent changes to digital phantoms already established, both in composition and in their movement.

Such a graphical user interface (GUI) can create digital phantoms suitable for simulating various imaging techniques with a research interest.

SUBJECT AREA: Interface for designing phantoms

KEYWORDS: digital phantoms, phantom models, optoacoustics, GUI, medical informatics

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