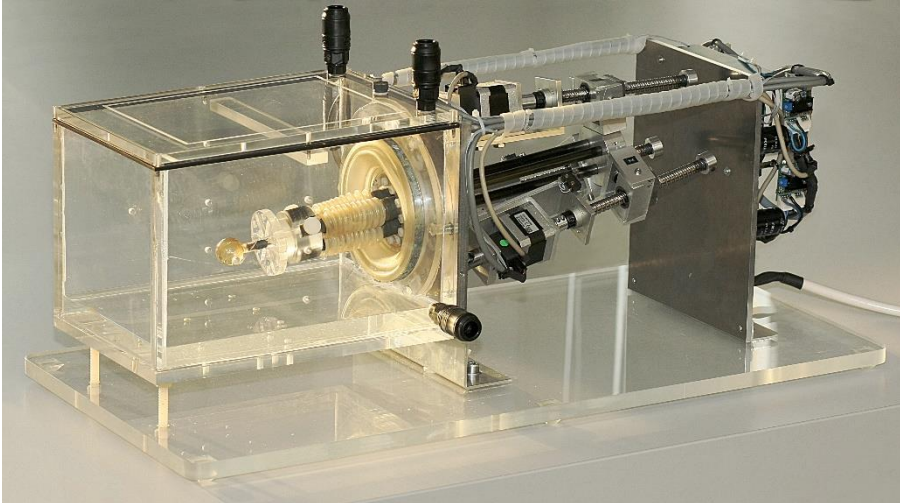


RWTH Technology

Robotic phantom for the validation of imaging and radiotherapy of moving tissue structures



Challenge

4D phantoms of the human thorax are needed both for the research, development and clinical validation of new 4D radiotherapy technologies and for the quality control of these technologies in clinical practice. The challenge here is to imitate the movement of a tumor as accurately as possible. Another challenge is the implementation of realistic radiophysical properties of a 4D phantom.

Solution

The invention is a special phantom robot, which allows any movement of a tumor imitation (target), especially according to physiological models. The target has the possibility to measure the incident radiation dose. The solution enables the target to be moved in a box that can be filled with liquid. This allows the implementation of realistic radiation-physical properties.

Advantages

- Human-equivalent structure through the use of tissue-equivalent materials
- Human-equivalent movements through the feasibility of arbitrary movement patterns
- Measurement capabilities through real-time recording of the target position as well as the dosimetry within the target
- Universal applicability due to simplified modularity and expandability
- Efficient use due to high robustness and reliability, portability and fast preparation of tests

Status

- Granted patent in Germany, France and Great Britain.
- Development status: Prototype

RWTH Aachen University is looking for partners for patent exploitation

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Fields of application

Clinical Phantoms

Keywords

#CT-Phantoms # mobile clinical phantoms #radiotherapy #Positron-emissionstomographie

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