ANIMMA 2021

Prague, Czech Republic

June 21-25, 2021

Contribution ID: **198**

Type: **Oral presentation**

#11-198 A multi-scale clinical translation strategy for photon-counting CT

Thursday, June 24, 2021 8:40 AM (20 minutes)

Currently first clinical CTs equipped with photon-counting technology are becoming available. Whereas such scanners will remain to be very rare in the time to come, laboratory based photon-counting μCT setups have become much more common in previous years. For this reason, method development in photon-counting CT is likely to be driven by translational research in the coming years. With Freiburg being among the first recipients of a clinical photon-counting CT, we aim to develop and provide a scaling and translational toolbox for this system, allowing researchers in the photon-counting imaging community to transfer their methods, developed on laboratory scale systems, to clinical scale systems.

Our approach is based on multi-scale phantom based system characterization in combination with robust physics and detector simulation. By extracting the characteristics of the respective source and target system via known ground truth, and by analyzing systematic scaling effects, translation of methods between such systems can be facilitated greatly.

In collaboration with the Institute of Experimental and Applied Physics of CTU Prague, we plan to perform a proof of principle investigation demonstrating this concept.

Within this investigation multi-contrast agent methods for pre-clinical / clinical purposes will be developed and optimized on laboratory scale systems and our clinical system in parallel. These data will be used to calibrate and verify our translational toolbox.

Primary authors: ZEMLICKA, Jan (IEAP CTU in Prague); DUDAK, Jan (Institute of Experimental and Applied Physics, Czech Technical University in Prague); BILLOUD, Thomas (IEAP CTU in Prague / University of Freiburg); PICHOTKA, Martin (UTEF, CVUT Praha / University of Freiburg)

Presenter: PICHOTKA, Martin (UTEF, CVUT Praha / University of Freiburg)

Session Classification: 11 Current Trends in Development of Radiation Detectors

Track Classification: 11 Current Trends in Development of Radiation Detectors