Contribution ID: **68**   Type: **Oral**

Physical MRI phantoms from radiomics perspective

Sunday, 29 May 2022 18:10 (15 minutes)

MRI has a number of distinct clinical advantages: e.g. multi-sequence capabilities producing superior contrast among soft tissues, full 3D imaging, and no ionizing radiation. Additionally, quantitative imaging biomarkers (referred to as radiomics) based upon MRI show promising single-study results for diagnosis, treatment monitoring, and outcome prediction. While relatively simple measures (shape and first order statistics based upon histogram) do provide some merit, full scope of radiomics is utilised by addition of heterogeneity analysis. That is specially the case for MRI where clinical imaging often uses relative pixel values (T1-weighted or T2-weighted) instead of, more complicated and time consuming options providing quantitative data.

However, radiomics still lack reproducibility originating in absence of standardisation in terms of different manufacturers and different approaches to analyse relatively complicated tissue heterogeneity. A part of the solution is in physical phantoms containing sufficient information that would allow grasping the textural differences between tissue types or processes of interest. These phantoms will be used for optimization of radiomics pipeline consisting of a variety of technical solutions for interpolation, discretisation, feature extraction, feature selection, and machine learning.

Primary author: Dr ALIC, Lejla

Presenter: Dr ALIC, Lejla

Session Classification: Special session on PET/MR and TB-PET phantoms

Track Classification: New technologies for PET/MR and TB-PET