CME 10
Thyroid Committee
Tuesday, October 20, 11:30-13:00

Session Title
Radiomics in thyroid imaging

Chairpersons
Markus Luster (Marburg, Germany)
Ioannis Iakovou (Thessaloniki, Greece)
Martha Hoffmann (Vienna, Austria)

Programme
11:30 - 12:00 Martina Sollini (Milan, Italy): Imaging Biomarkers in Thyroid Nodules and Cancer (General Concept, Omics)
12:00 - 12:30 Constantin Lapa (Augsburg, Germany): PET Radiomics in the Characterization of Thyroid Nodules (FDG/PSMA/FDOPA/DOTA)
12:30 - 13:00 Margarita Kirienko (Milan, Italy): Perspectives of Artificial Intelligence and Radiomics in Thyroid Imaging (Studies with US and MR)

Educational Objectives
1. Introduce to advanced technology of artificial intelligence and radiomics.
2. Present the perspectives of the implementation of radiomics in thyroid imaging.
3. Demonstrate Thyroid radiomic’s clinical role.

Summary
Nuclear thyroidology is continuously expanding. It is increasingly being combined with advanced technologies such as artificial intelligence and radiomics. Radiomic data contain first-, second-, and higher-order statistics. These data are combined with other patient data and are mined with sophisticated bioinformatics tools to develop models that may potentially improve diagnostic, prognostic, and predictive accuracy. They can provide valuable information including differential diagnosis, histopathology, molecular/ genetic characterization, stage, target volume delineation, screening and prognosis. In contrast to other high-dimensional omics data, including those from genomics, transcriptomics, and metabolomics, radiomics shows unique characteristics, in that there is no direct biological relationship, and feature stability is greatly dependent on imaging itself. Radiologic and statistical challenges in radiomics include those related to the reproducibility of imaging data, and the generalizability of modeling. It is without doubt, that there are a lot to learn yet, to facilitate safe and effective implementation of radiomics in everyday clinical practice. In this respect, the current session aims to introduce the perspectives of the implementation of radiomics in thyroid imaging, to demonstrate its clinical role and to enable the acquisition of super selective theranostics and precision individualized medicine.

Key Words
Artificial intelligence, radiomics, thyroid imaging