



Medical Physics
Department of Radiology & Nuclear Medicine

Marcel Segbers

Medical physicist



Medical Physics Radiology & Nuclear Medicine



- Marcel Segbers *Nuclear Medicine (PET, SPECT)*



- Marcel van Straten *Radiology (CT)*



- Mark Konijnenberg *Nuclear Medicine (Dosimetry)*



- Niels van der Werf *Radiology & NM (CT, MRI)*

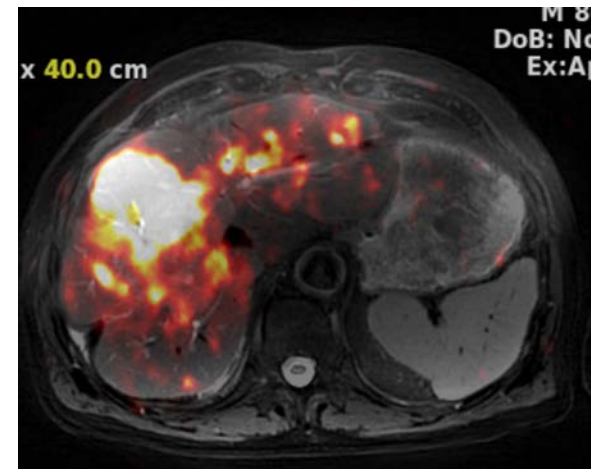


- Piotr Wielopolski *Radiology (MRI)*

- 1–2 Master Students

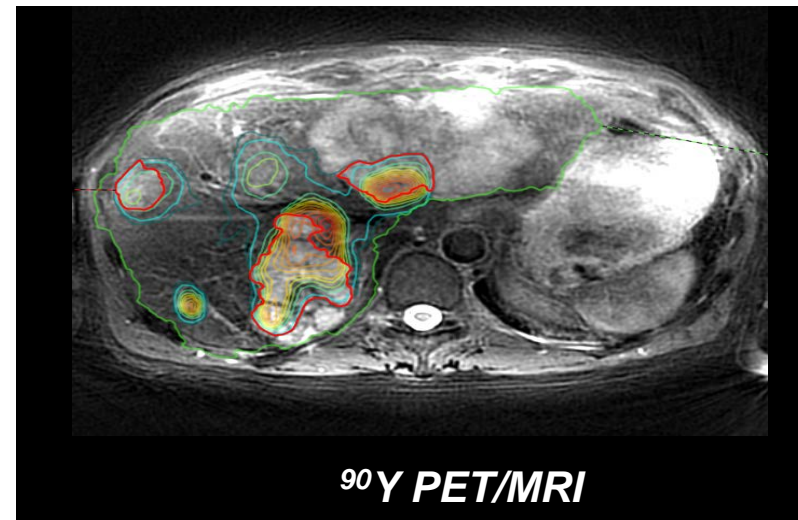
Medical Physics Patient Care

- Safe Use Of
 - Medical Devices
 - Ionizing Radiation
 - Magnetic Fields
 - Patient Care & Research
- State of the Art (Imaging) Equipment
 - Introduction of new (Imaging) Techniques
- Multi Disiplinary
 - Physicians
 - Technicians
 - Pharmacist
 - Chemists
 - ...



Medical Physics Research

- Directly aimed at improving patient care
 - Optimizing Clinical Imaging Protocols
 - Quantitative Imaging
 - Dosimetry
- Diagnostic Imaging
 - Image Quality v.s. Image Quality
- Radionuclide Therapy
 - Tumor Control v.s. Toxicity



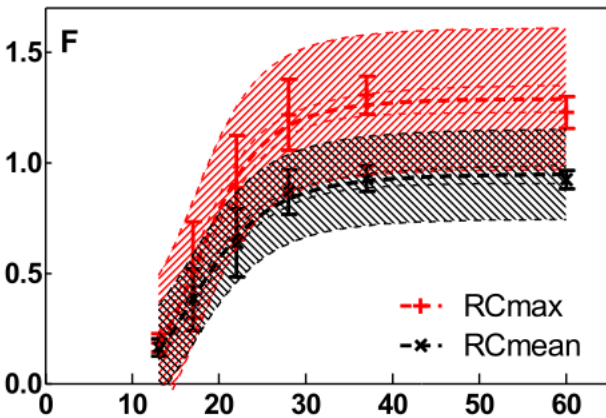
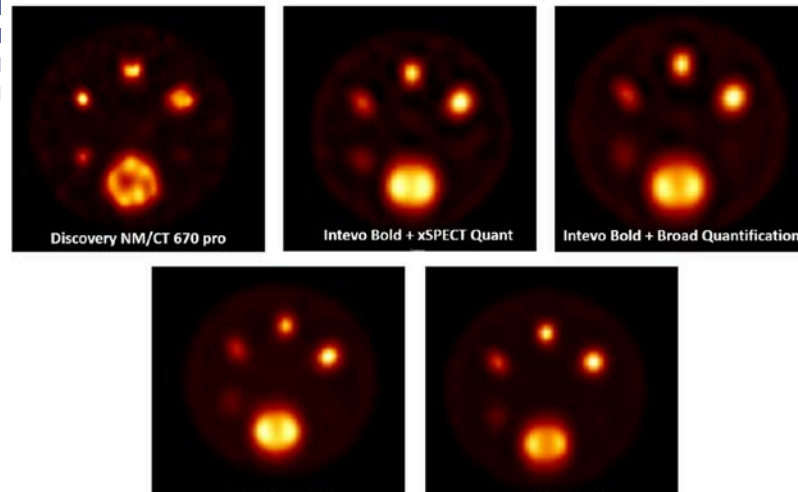


Variability in lutetium-177 SPECT quantification

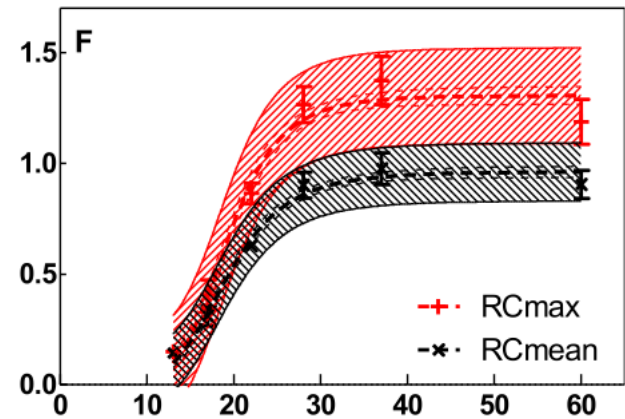


Lu-177

5 Hospitals



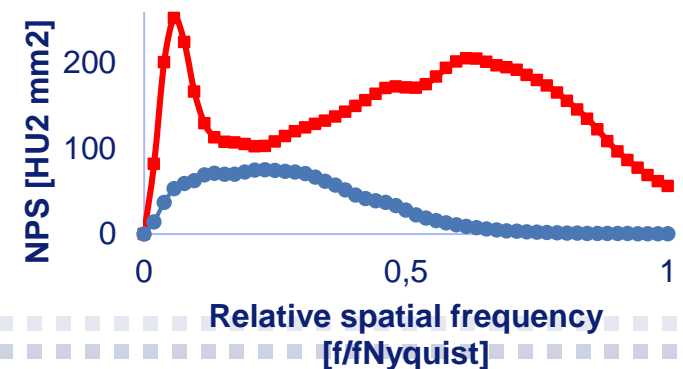
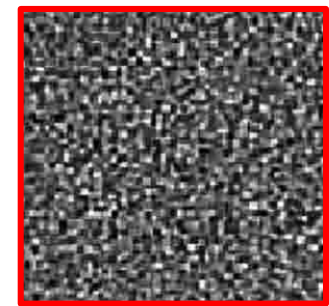
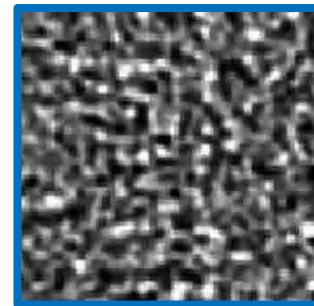
National
Standardized
Imaging Protocol





Multi-modality image quality assessment

- Problem:
Current image quality metrics are insufficient
 - Example: two images with equal SD
- Goal:
Implementation of novel image quality metrics
 - Noise power spectrum / Structured noise index / Modulation Transfer function / Model observers (d') / ...
 - Fully automated python scripts
 - Multi-modality



Medical Physics

