

Postprocessing and Cross Validation

New Imaging Tools: Cerenkov Luminescence Imaging

Faster Than the Speed of Light – Applications for Cerenkov Imaging

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Cerenkov radiation is the blue-light produced by particles traveling faster than the speed of a light through a dielectric medium. While this phenomenon has been described originally in the early 20th century and rewarded with the Nobel Prize for Physics in 1958 it was only recently that this phenomenon was recognized as utilizable tool for optical in vivo imaging of nuclides. In this context Cerenkov Luminescence Imaging (CLI) is a new, emerging modality that utilizes the light produced by radionuclides for in vivo imaging using optical equipment. CLI requires highly sensitive optical cameras to detect the low amounts of photons emitted compared to other optical imaging modalities. However, it offers several compelling advantages. The imaging equipment remains still cheaper than a PET scanner; CLI allows imaging of nuclides that cannot be imaged otherwise such as ^{90}Y or ^{225}Ac and it offers some compelling advantages that might suggest CLI for clinical applications once technical challenges are overcome.