



*The Abdus Salam
International Centre for Theoretical Physics*



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College of Soil Physics

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Gamma and X ray attenuation and introduction to computed tomography 1

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Gamma and X-Ray attenuation with an introduction to computed tomography

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Campo de girasóis

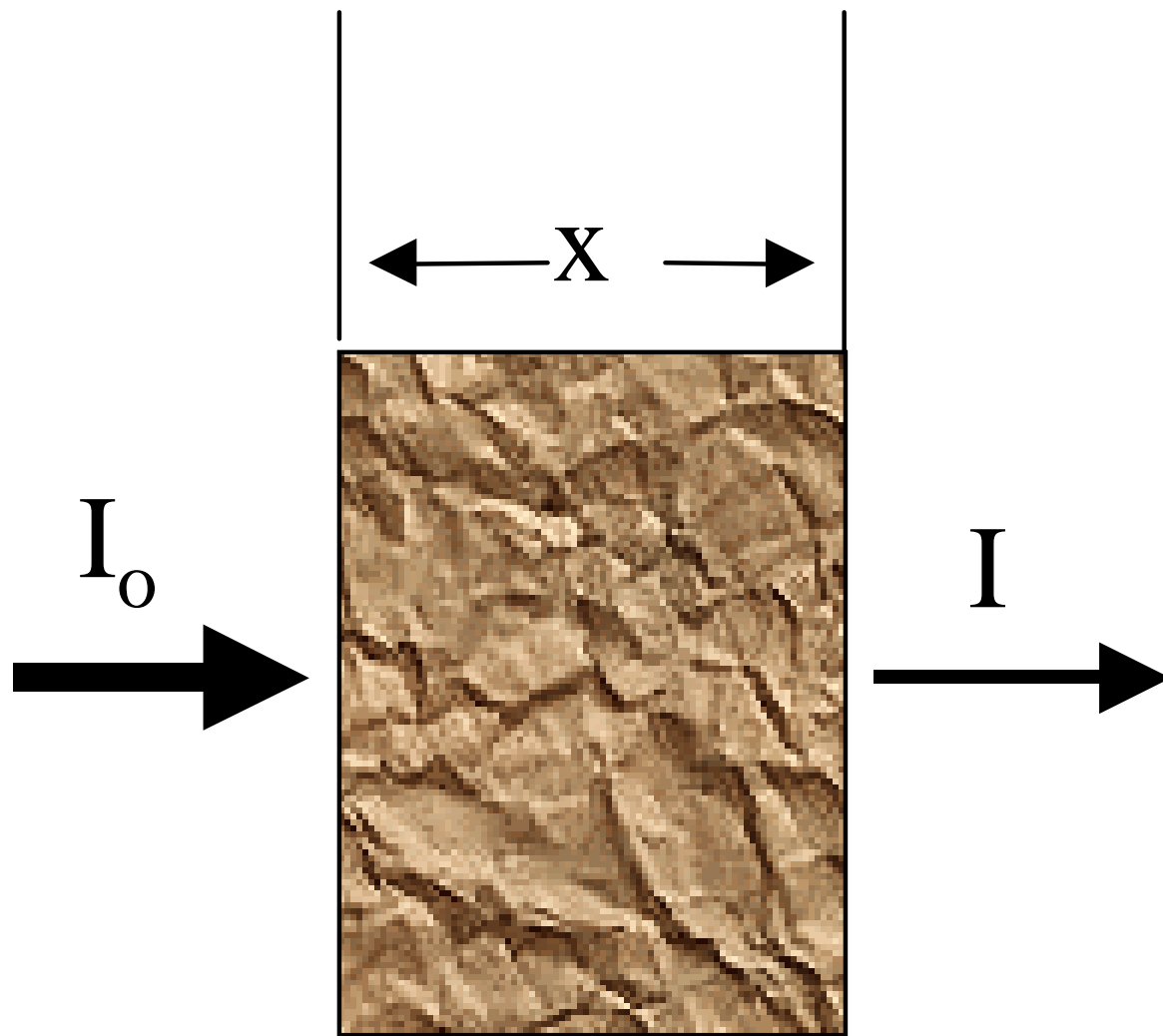
Nikolaus 96

ELETROMAGNETIC WAVE ATTENUATION IN SOIL PHYSICS

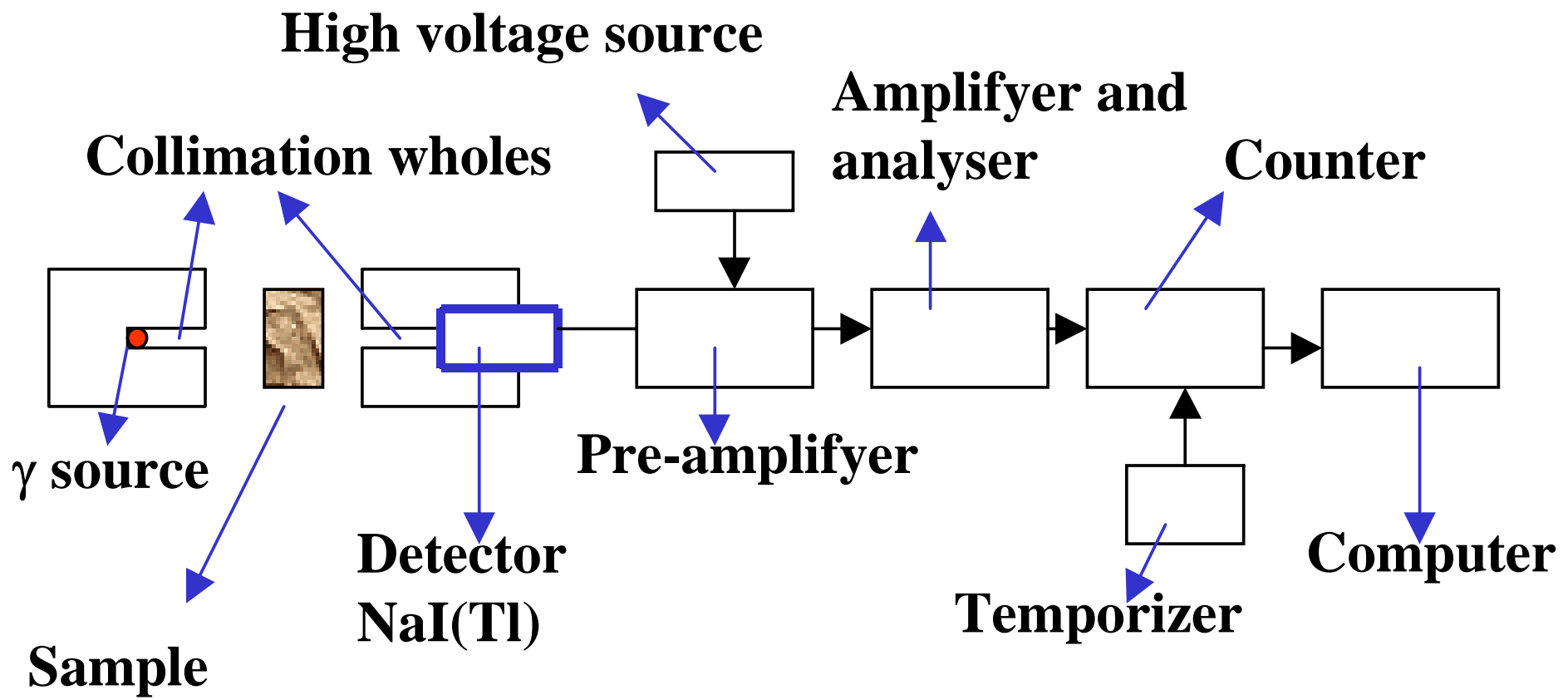
$$E = hf ; \quad c = \lambda f = \text{constant}$$

h being Plank's constant.

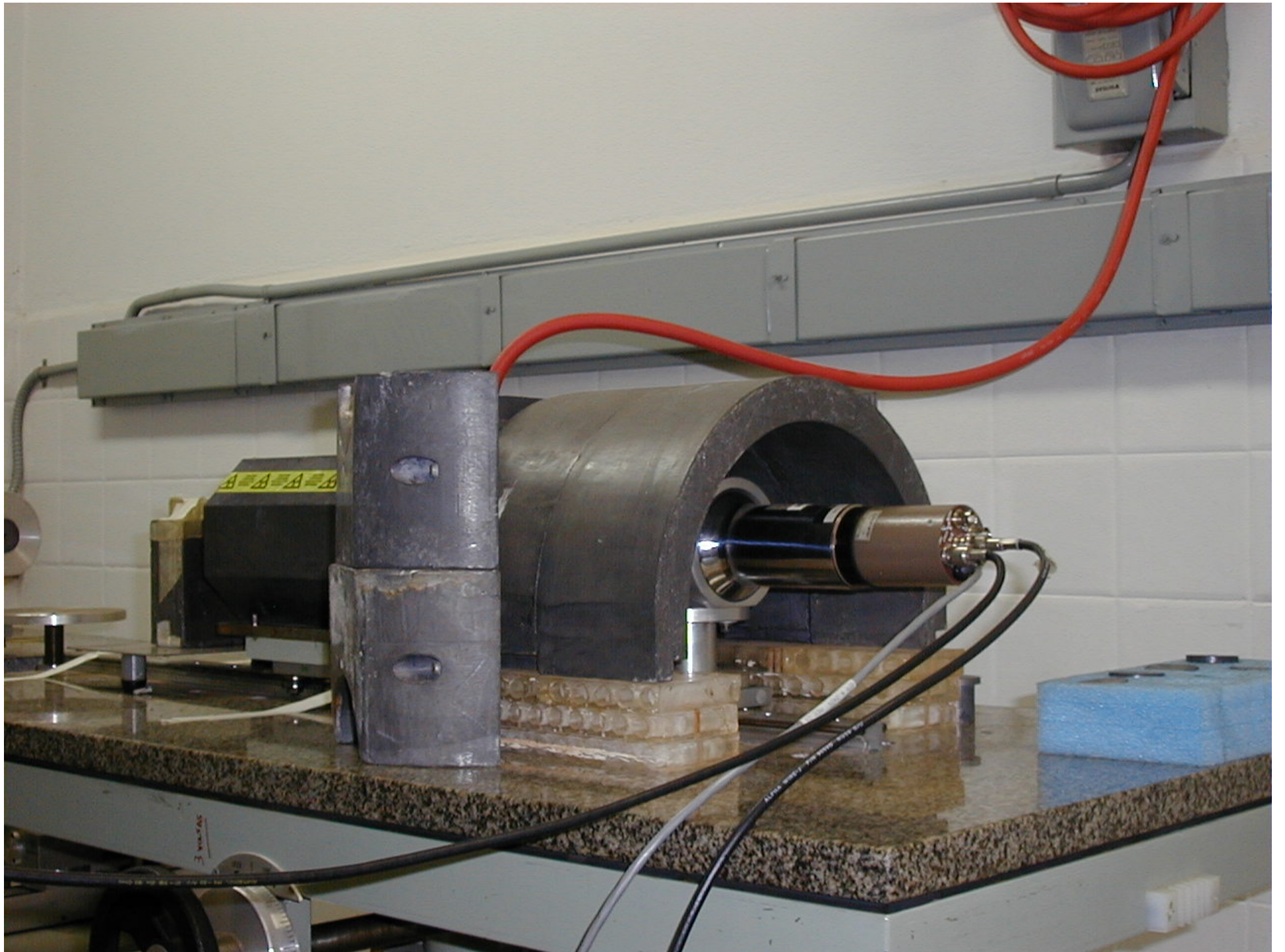
Radiation type	Wave length λ (μm)
Gamma	$4 \times 10^{-8} - 1 \times 10^{-4}$
X	$1 \times 10^{-5} - 0.01$
ultra violet	$0.01 - 0.38$
visible light	$0.38 - 0.78$
infrared	$0.78 - 1.000$

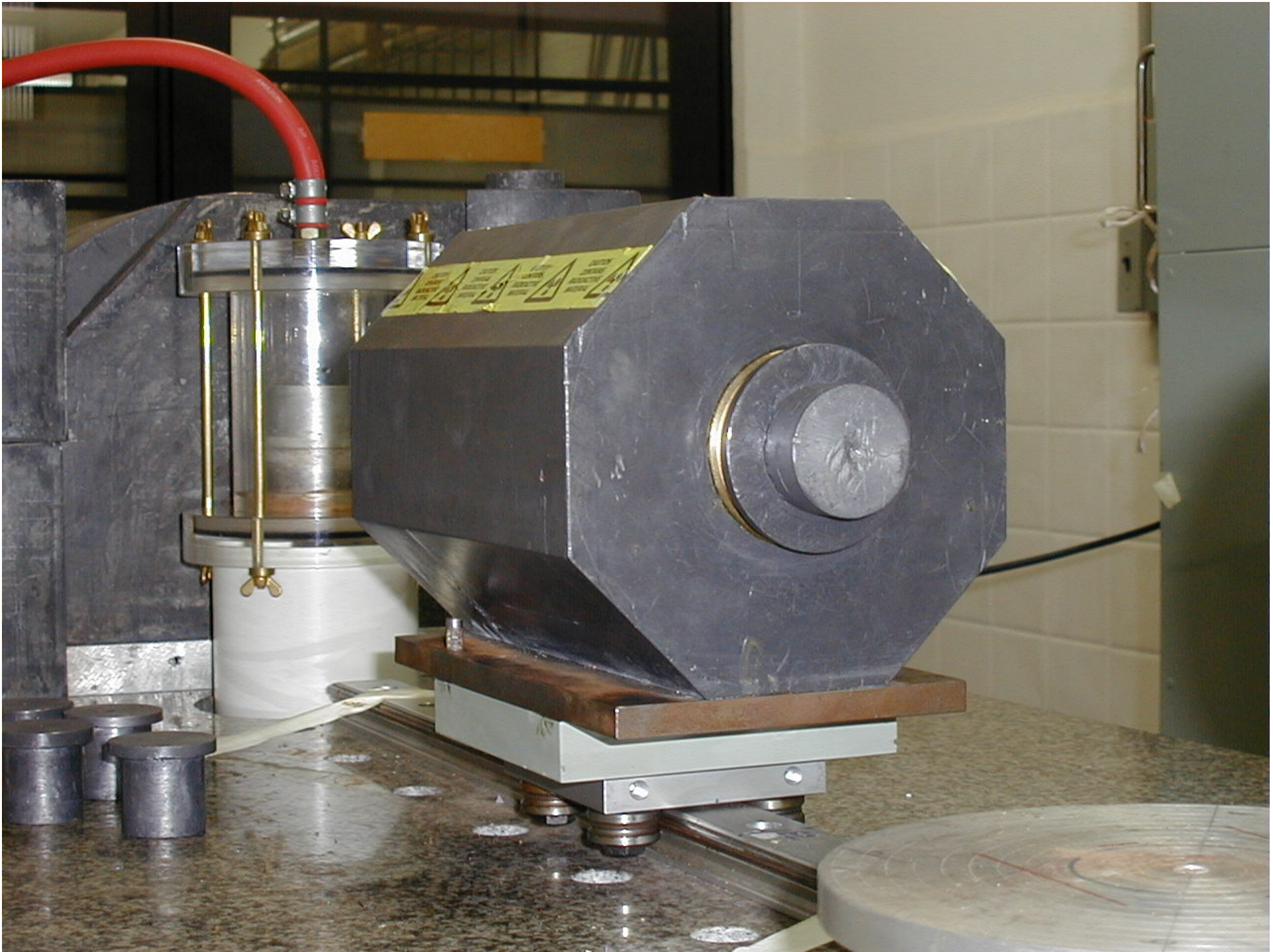


$$I = I_0 e^{-\mu \cdot \rho \cdot x}$$



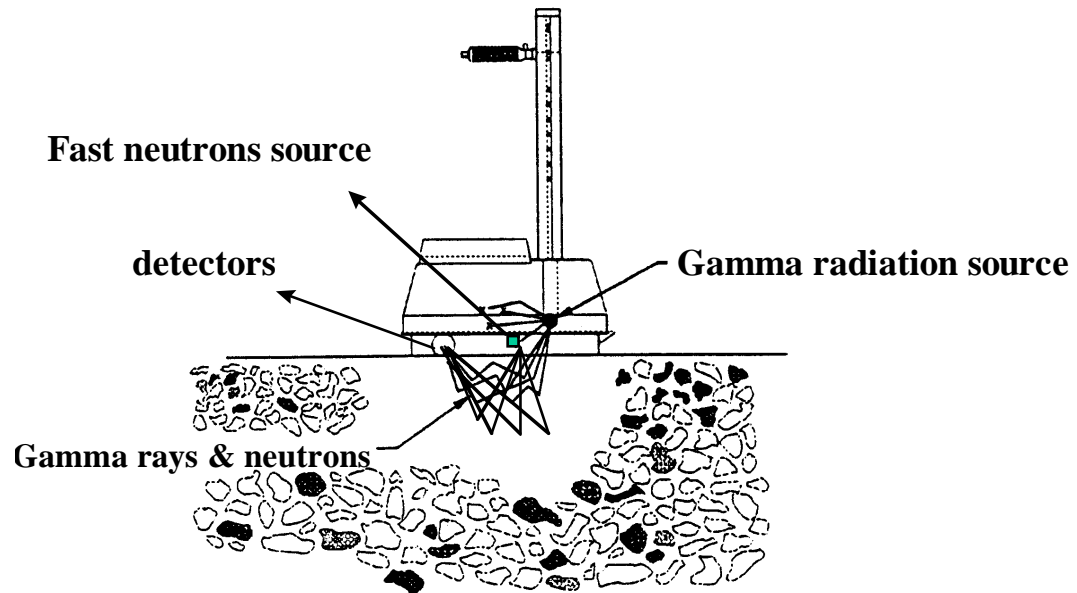
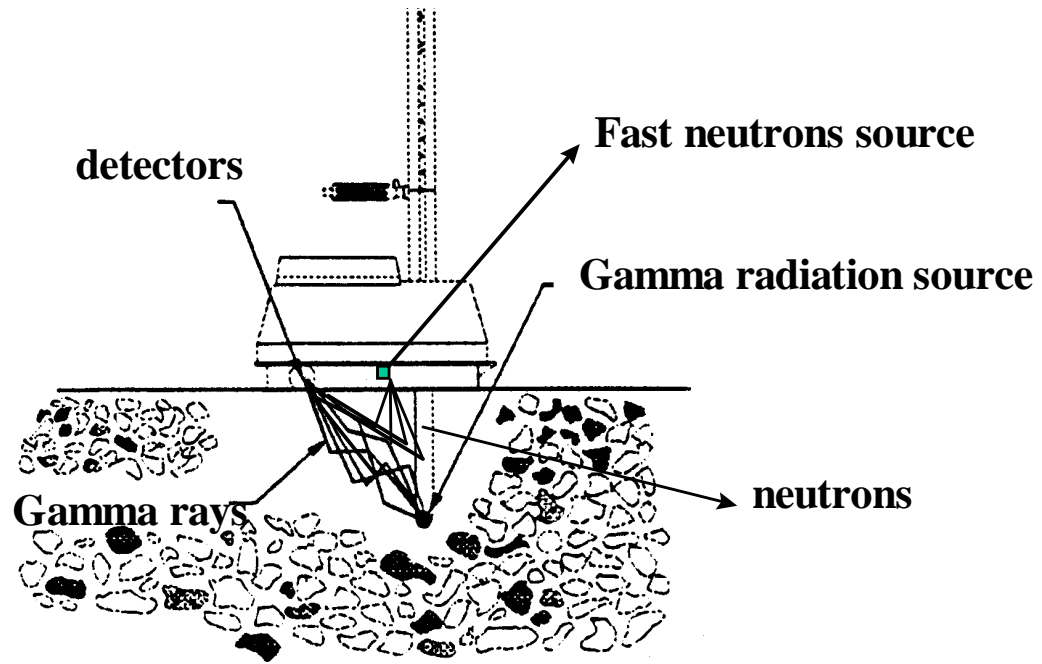




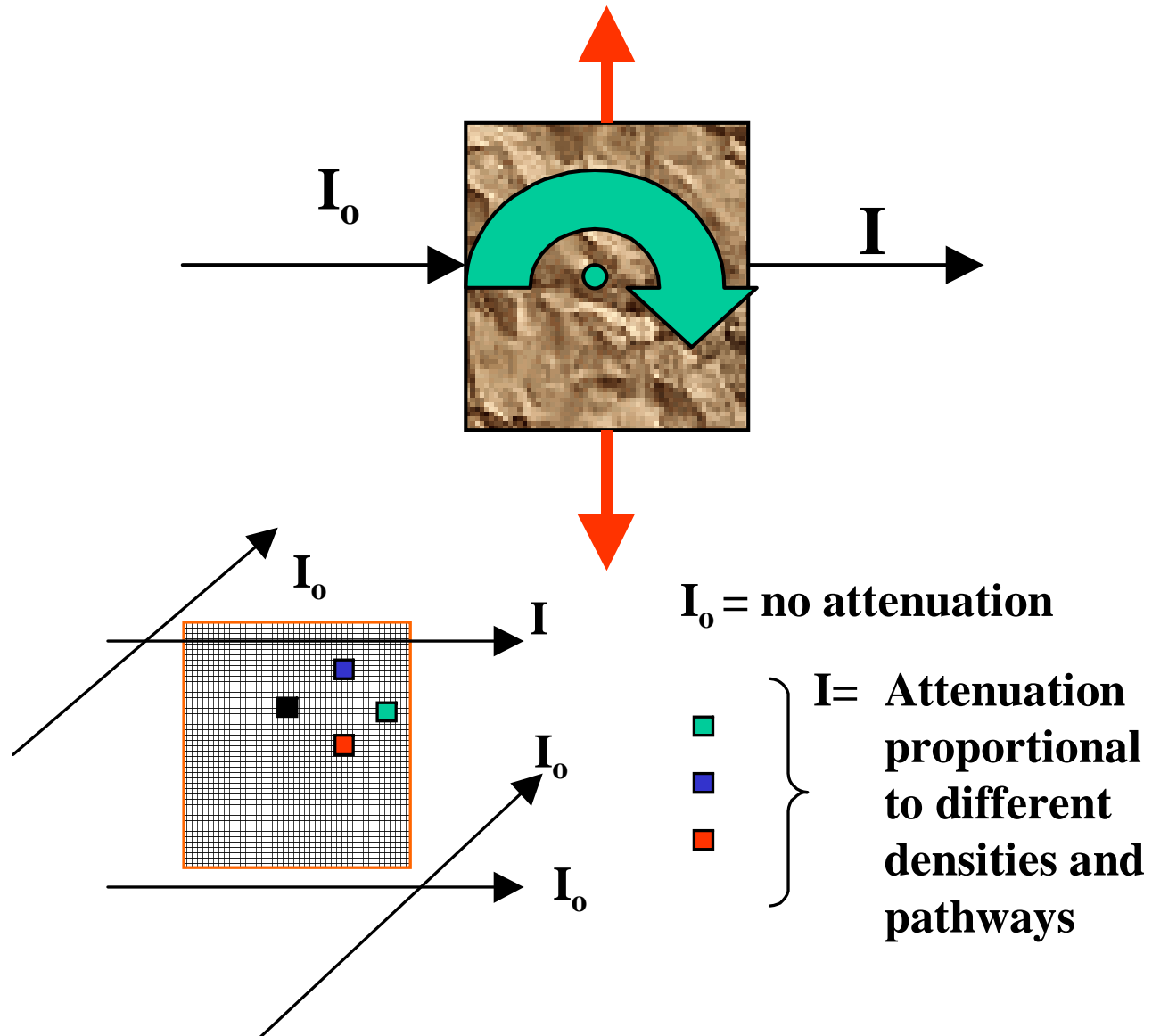


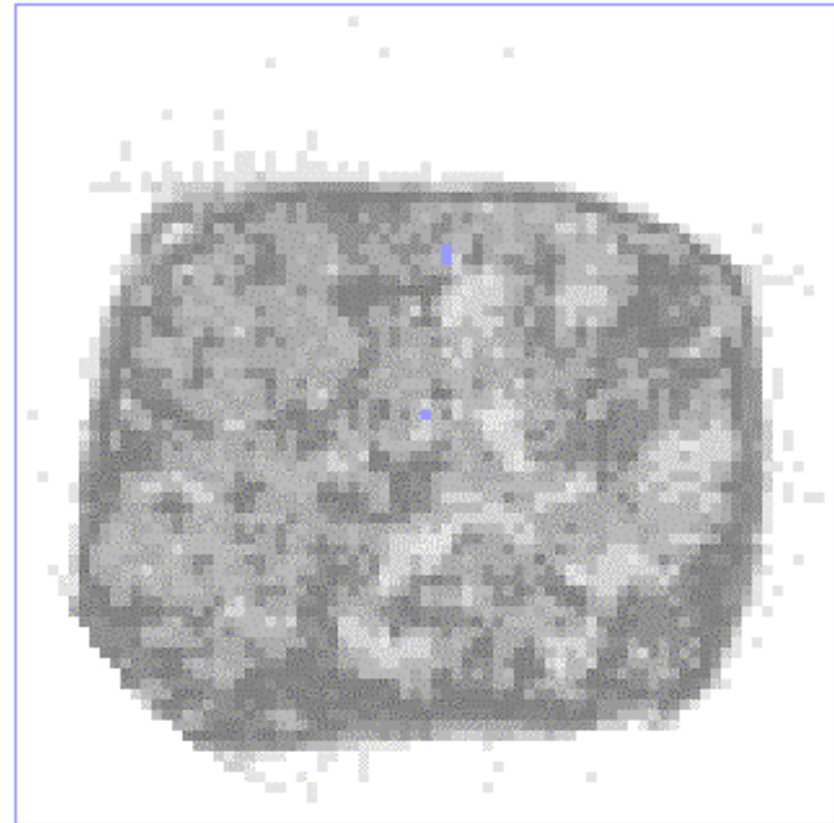
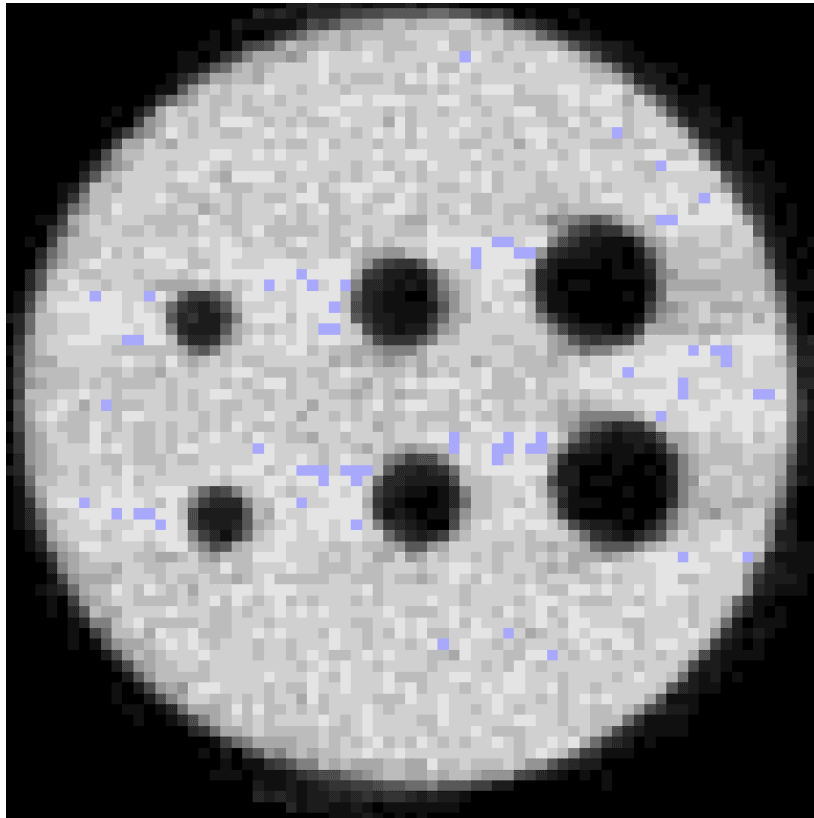




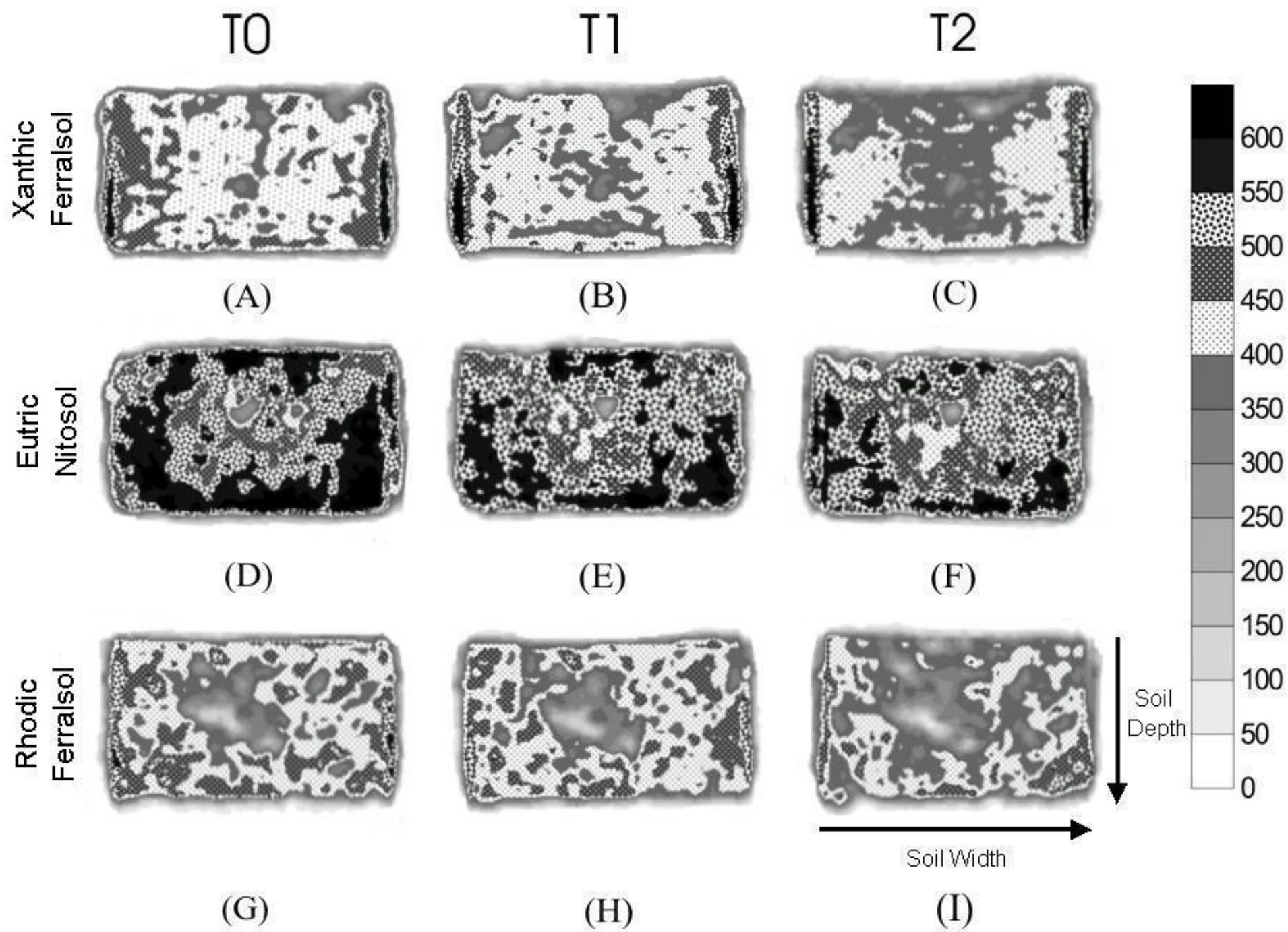


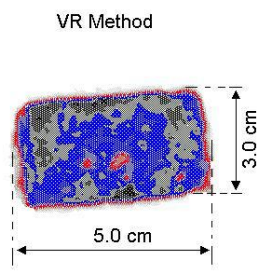
Computed tomography



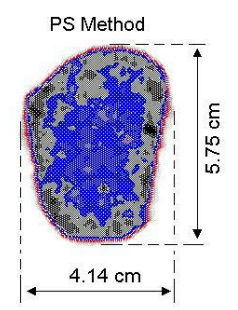
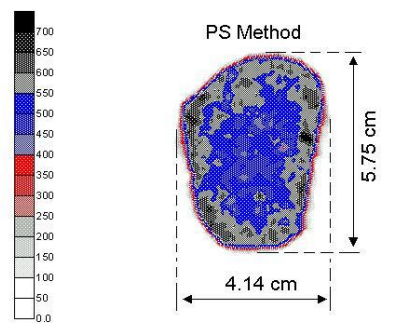


Examples of tomographic images obtained at CENA/USP, Piracicaba, Brazil

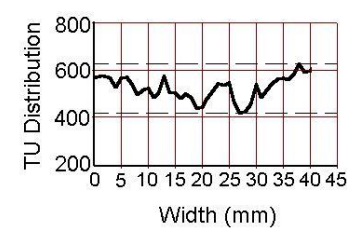




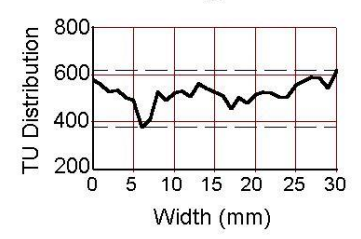
A.



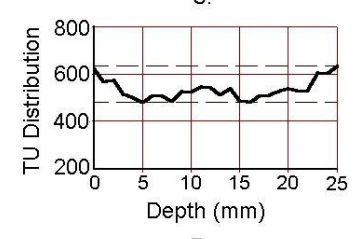
B.



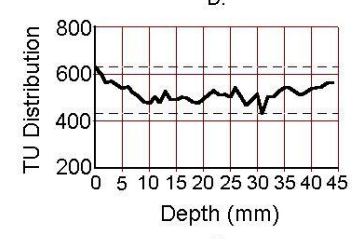
C.



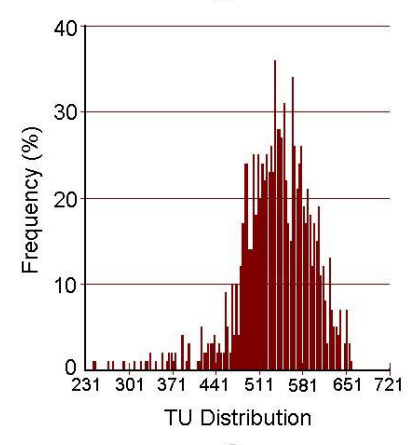
D.



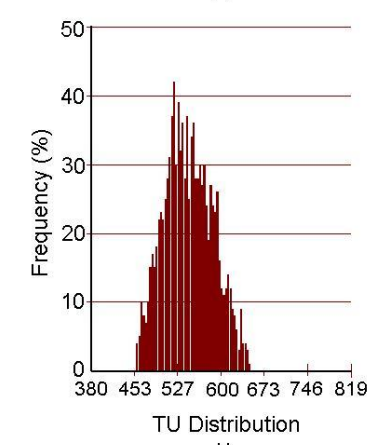
E.



F.



G.



H.