

X光呈像原理

楓展貿易有限公司 製

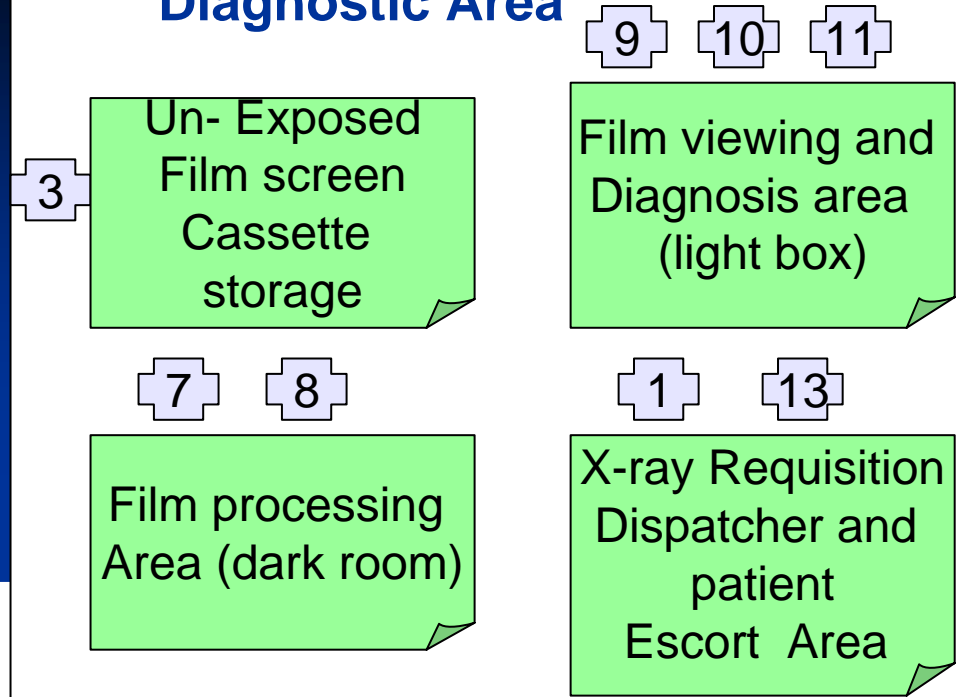
X 光成像的原理

- X 光穿透人體部分組織 (軟組織)，部分不穿透 (骨骼)
- 形成不同組織間的明暗對比
- 就這樣而已？影像品質如何控制？

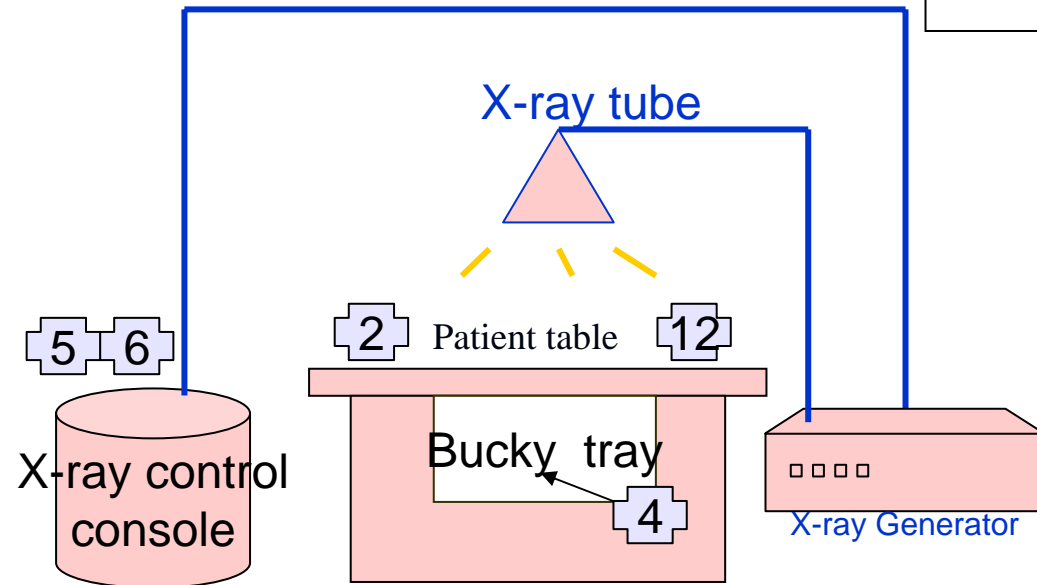
X 光與物質的作用

- Rayleigh 散射
- 光電效應
- Compton 散射
- Pair production

Diagnostic Area

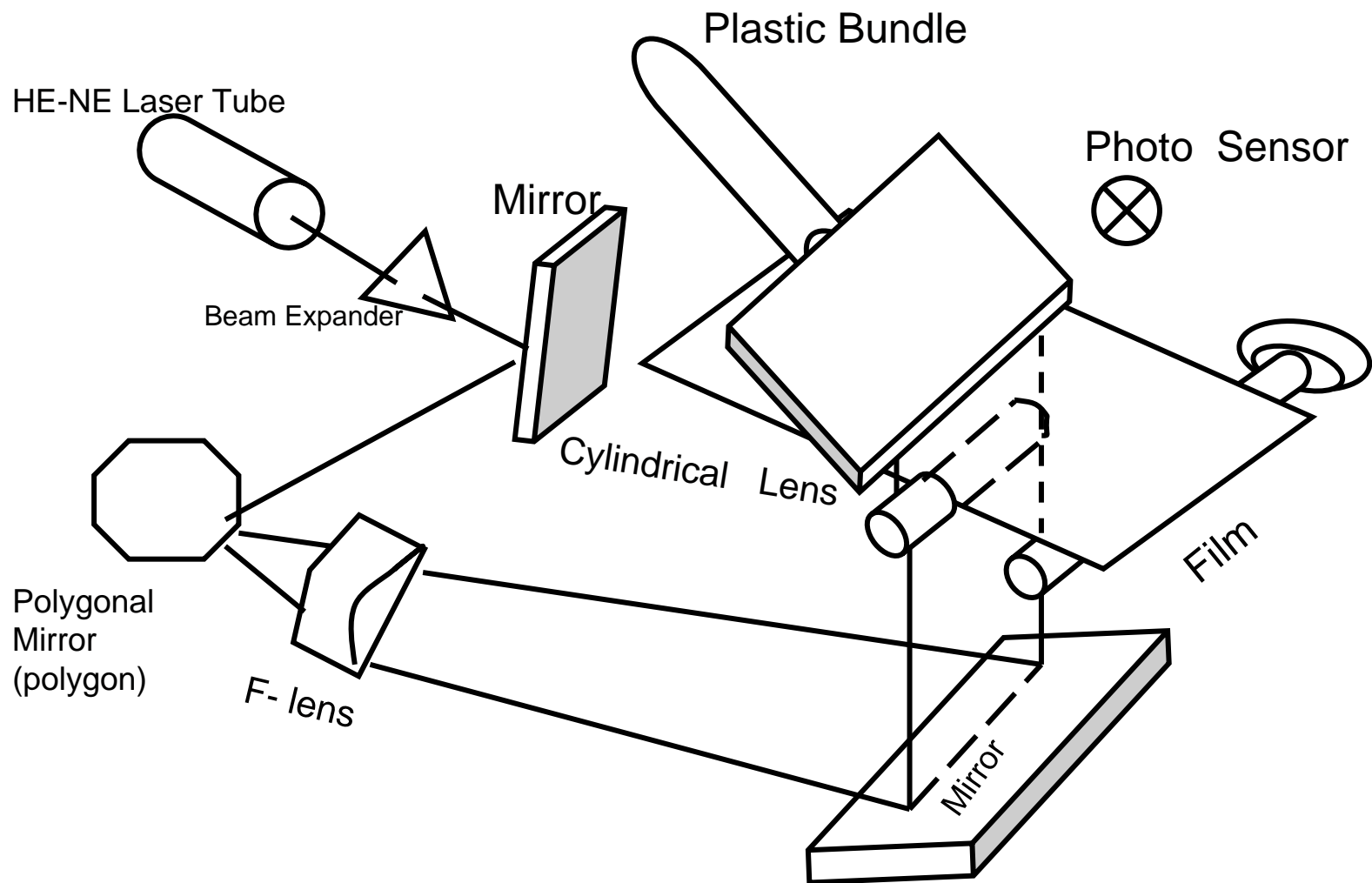


X-ray Procedure ROOM



一般攝影 Radiography

X光片掃描機 (X-film Scanner)



CR (Computed Radiography)

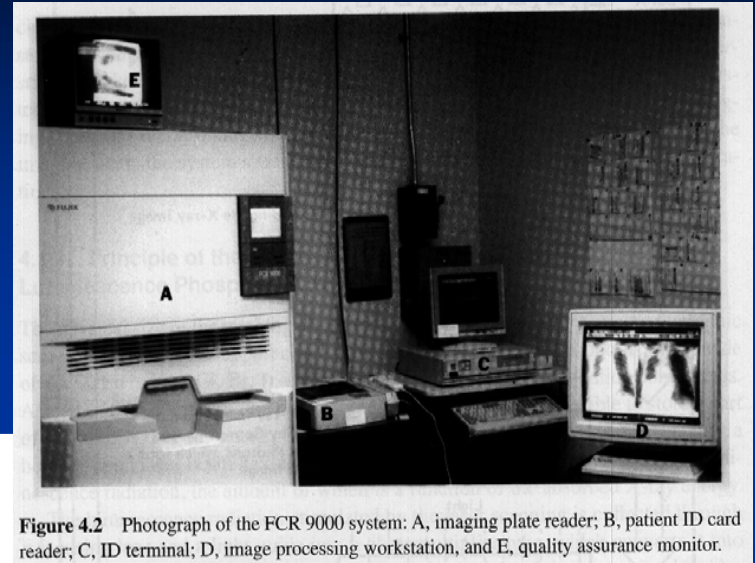
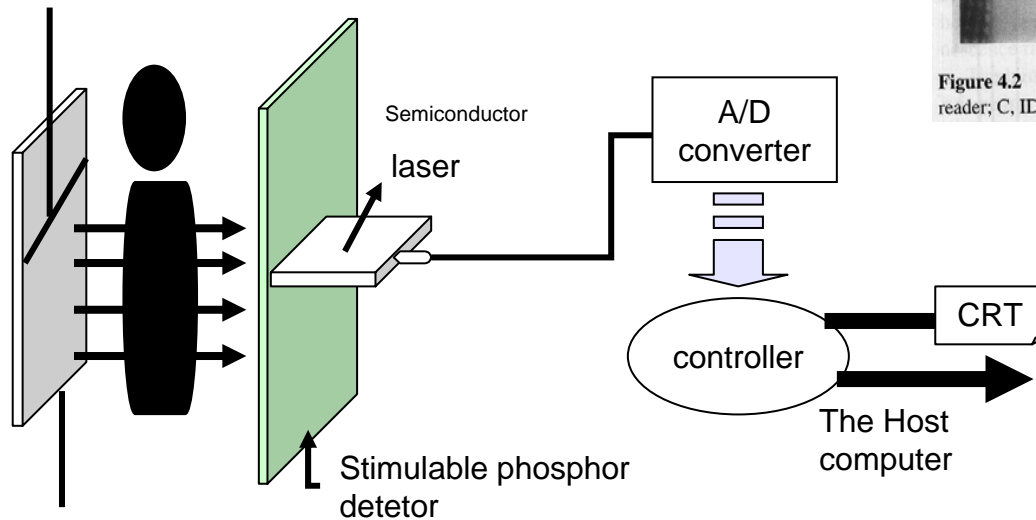
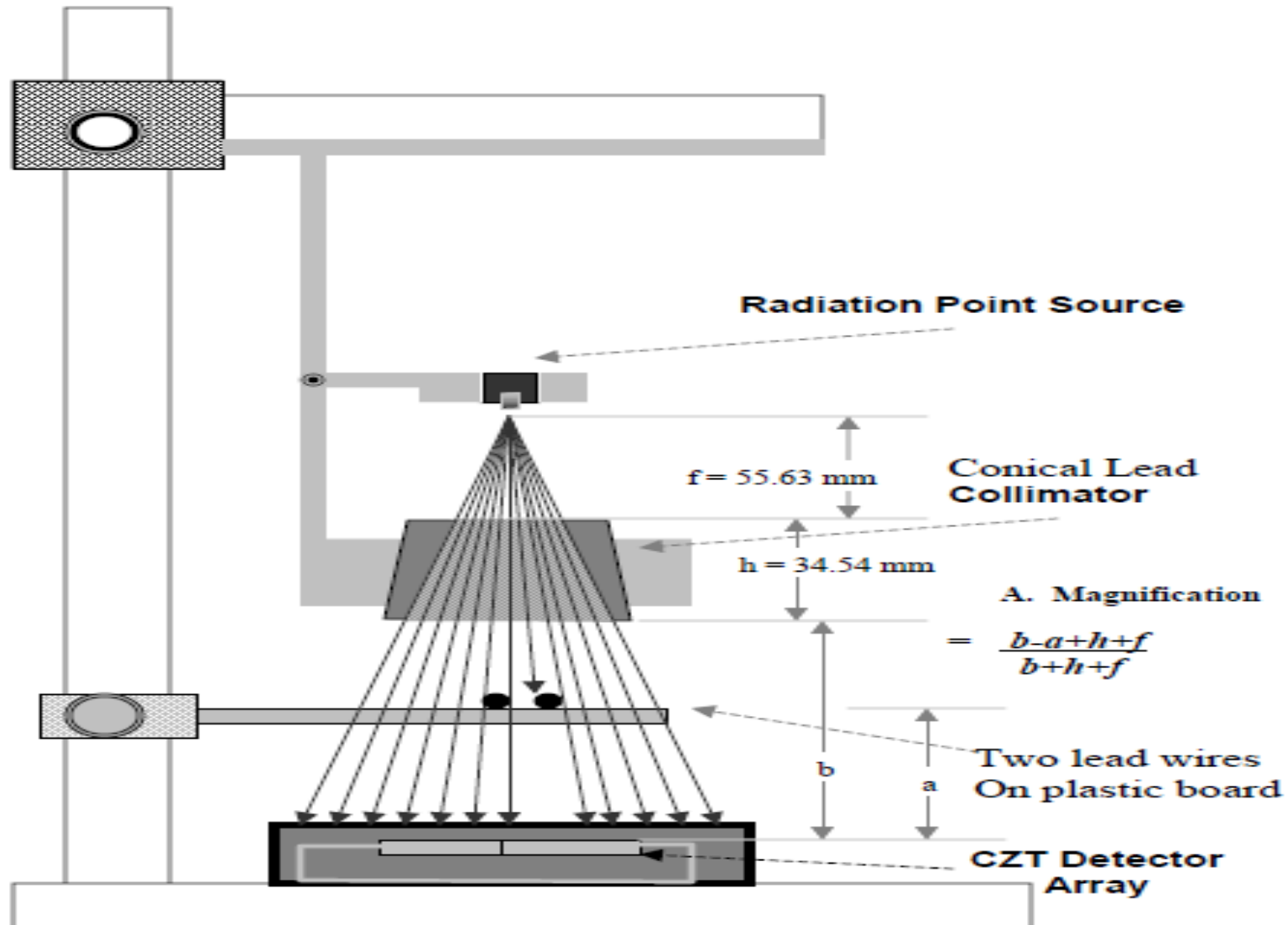


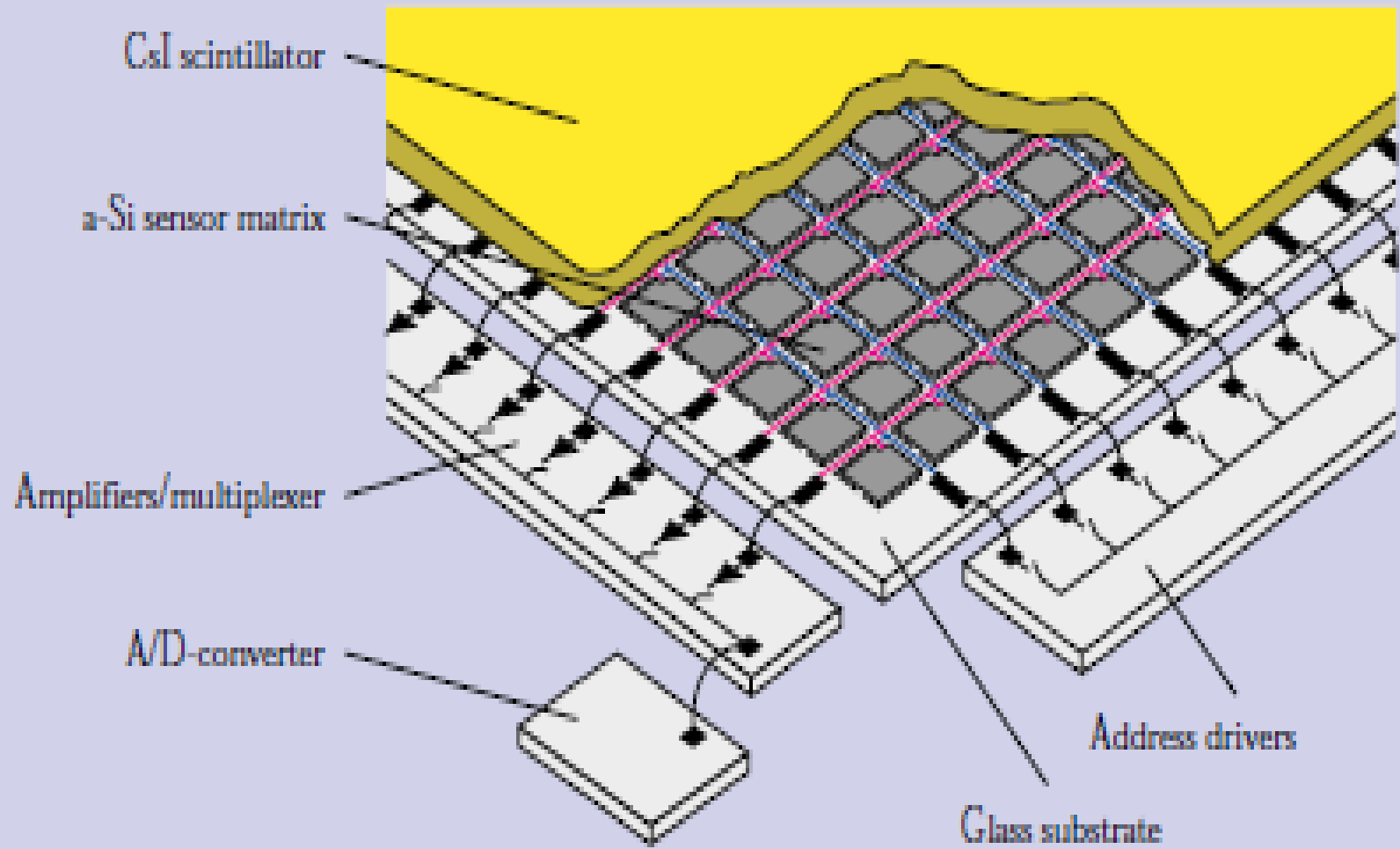
Figure 4.2 Photograph of the FCR 9000 system: A, imaging plate reader; B, patient ID card reader; C, ID terminal; D, image processing workstation, and E, quality assurance monitor.



Schematic showing formation of the latent image on the CR imaging plate (1) the plate being scanned by the laser beam (2) light photons being converted to electrical signal (3) and electrical signals being converted to digital signals, which form a CR image (4) Courtesy of Konica Corporation)

DR Direction Radiography

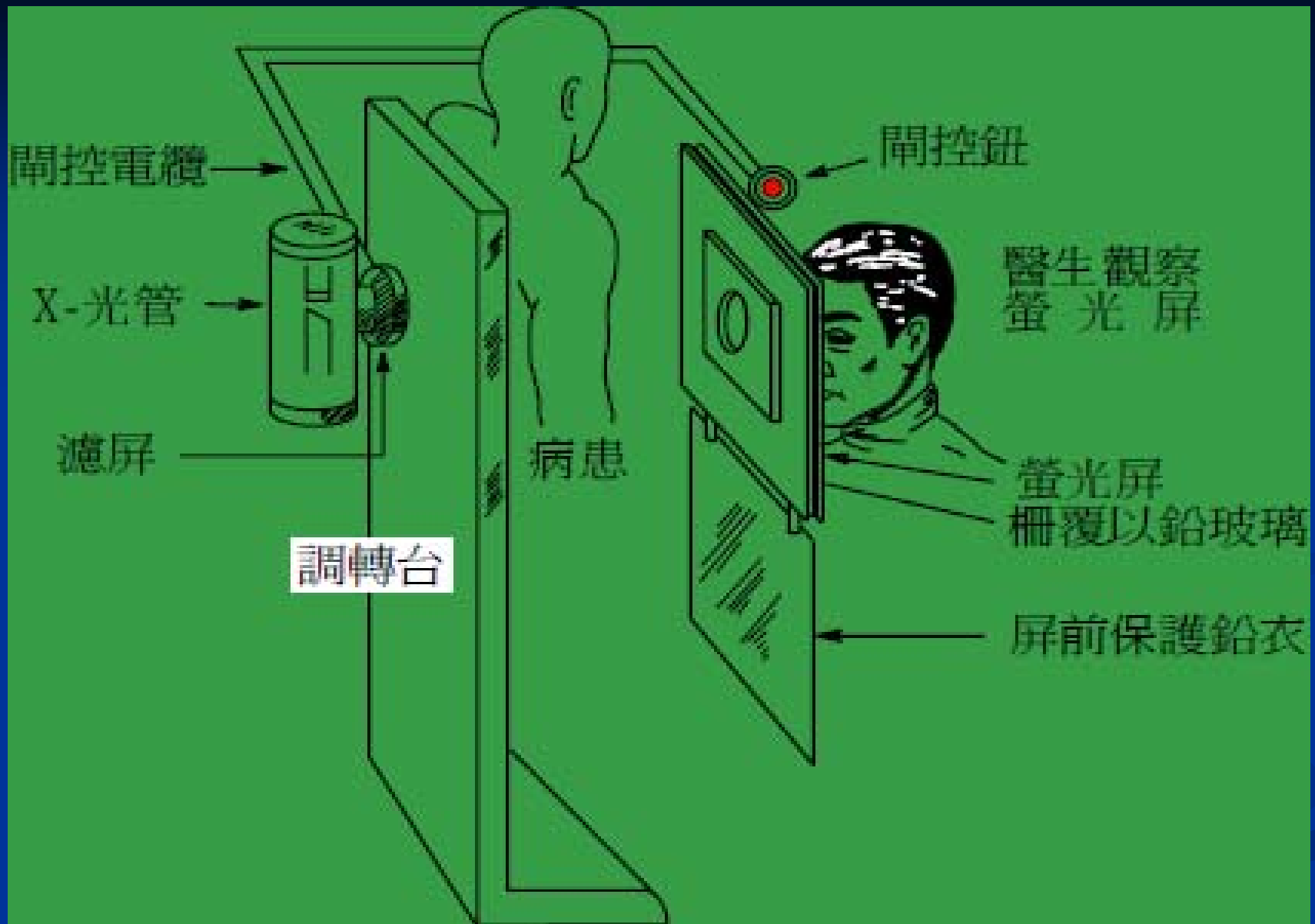




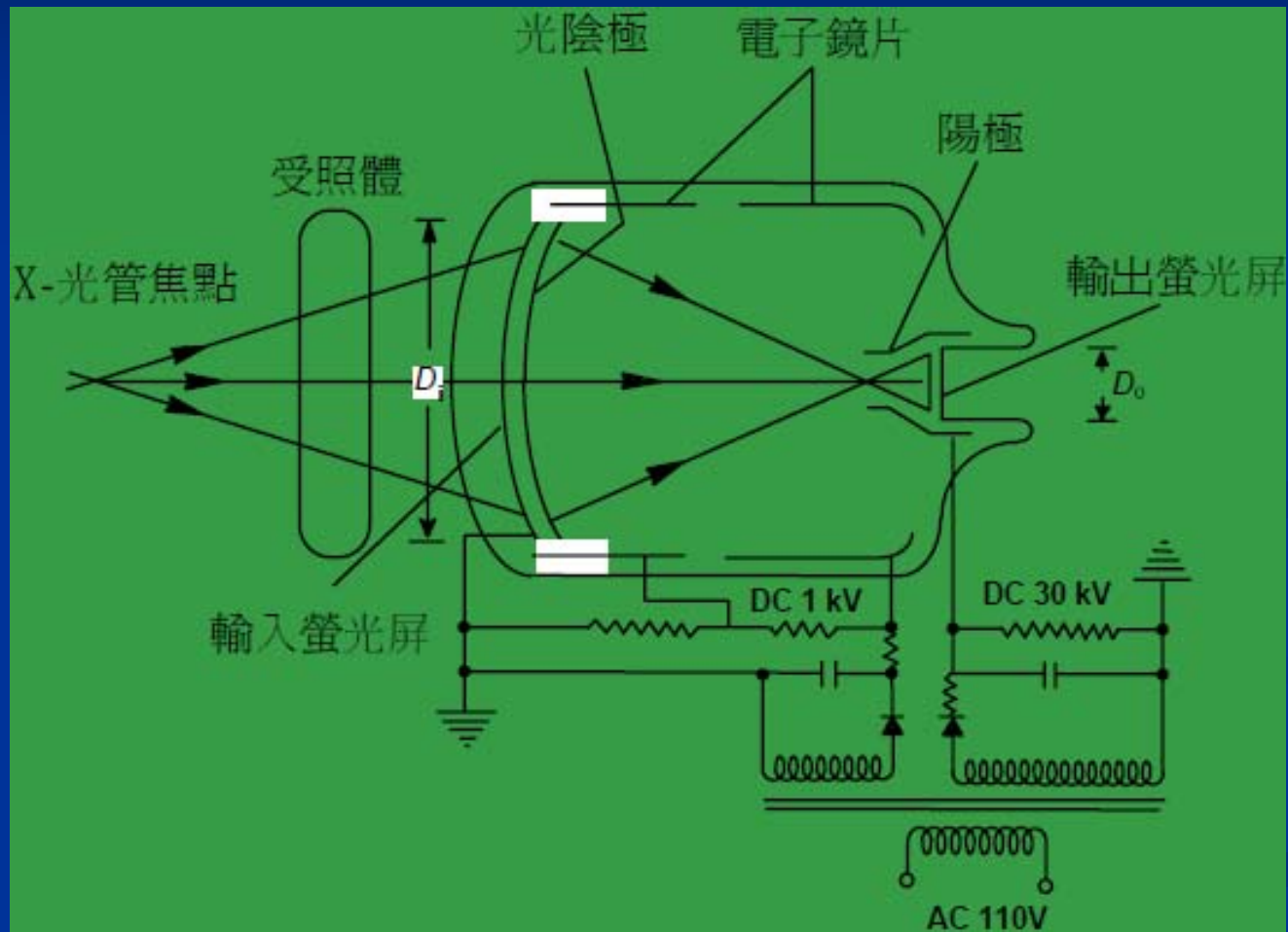
透視 Fluoroscopy

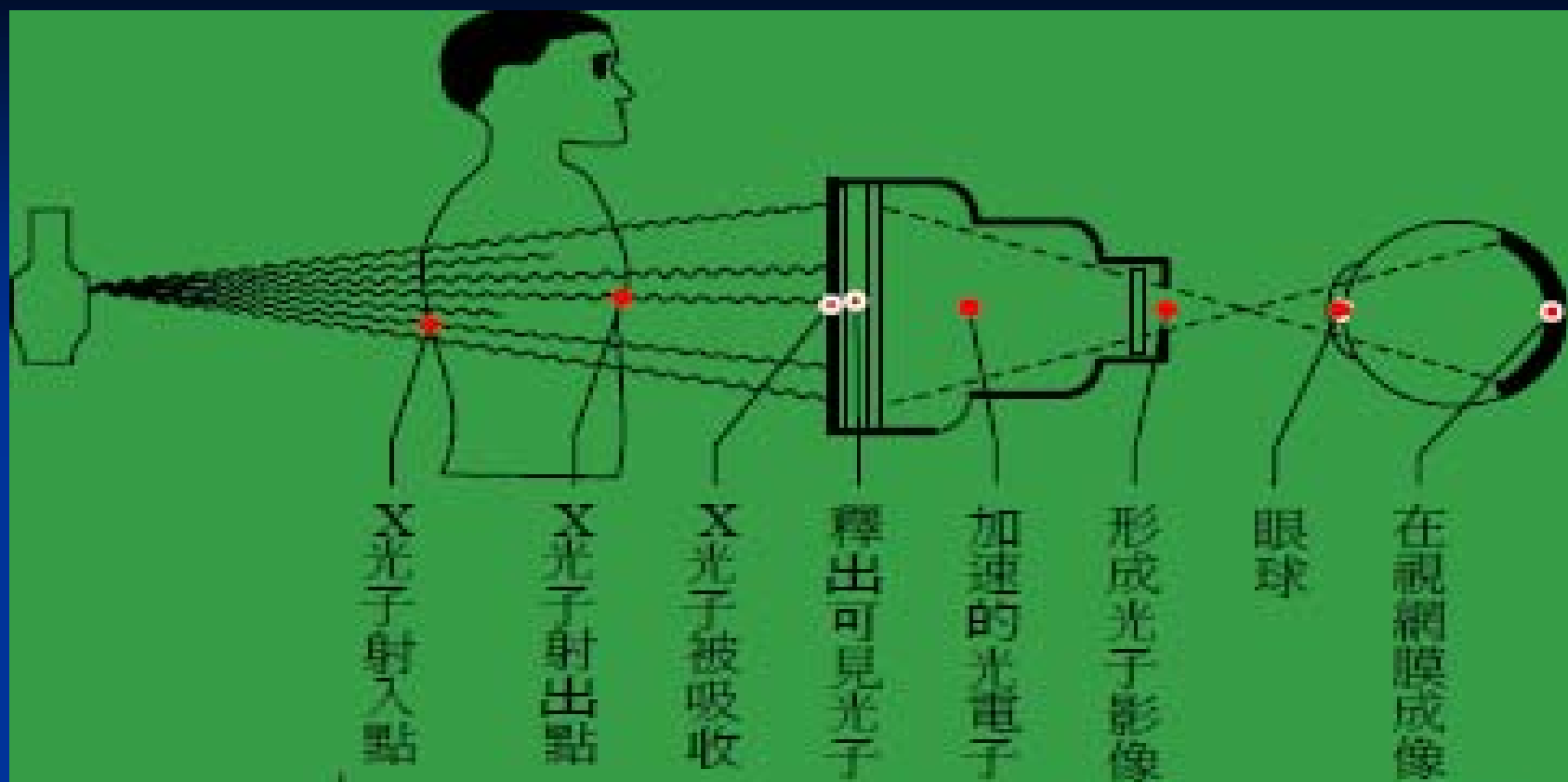
Fluoroscope (螢光攝影)

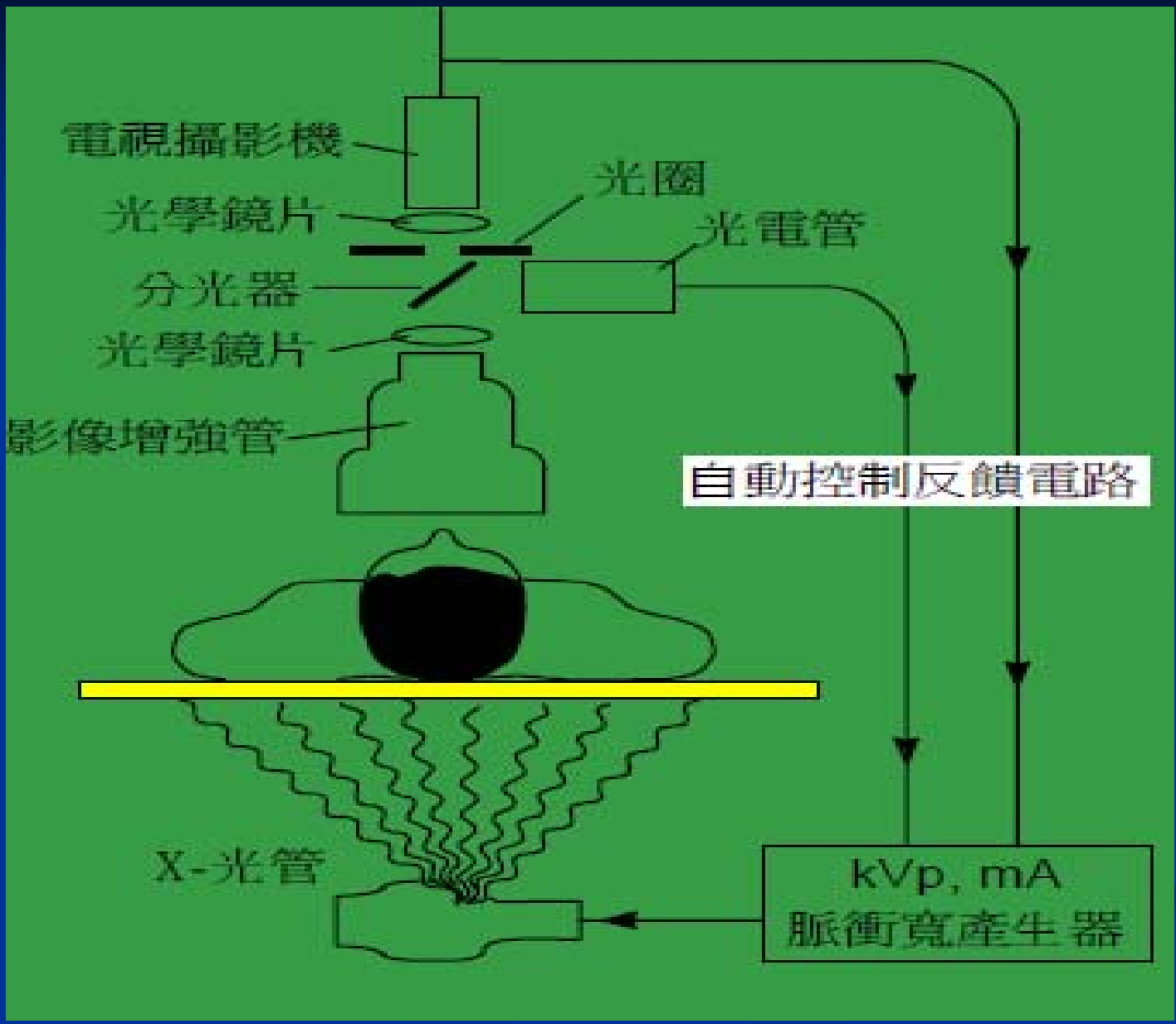
- 以螢光屏取代照相底片
 - 「一邊照射一邊監看」
 - 需有特殊感光材質
- 動態透視影像成為可能



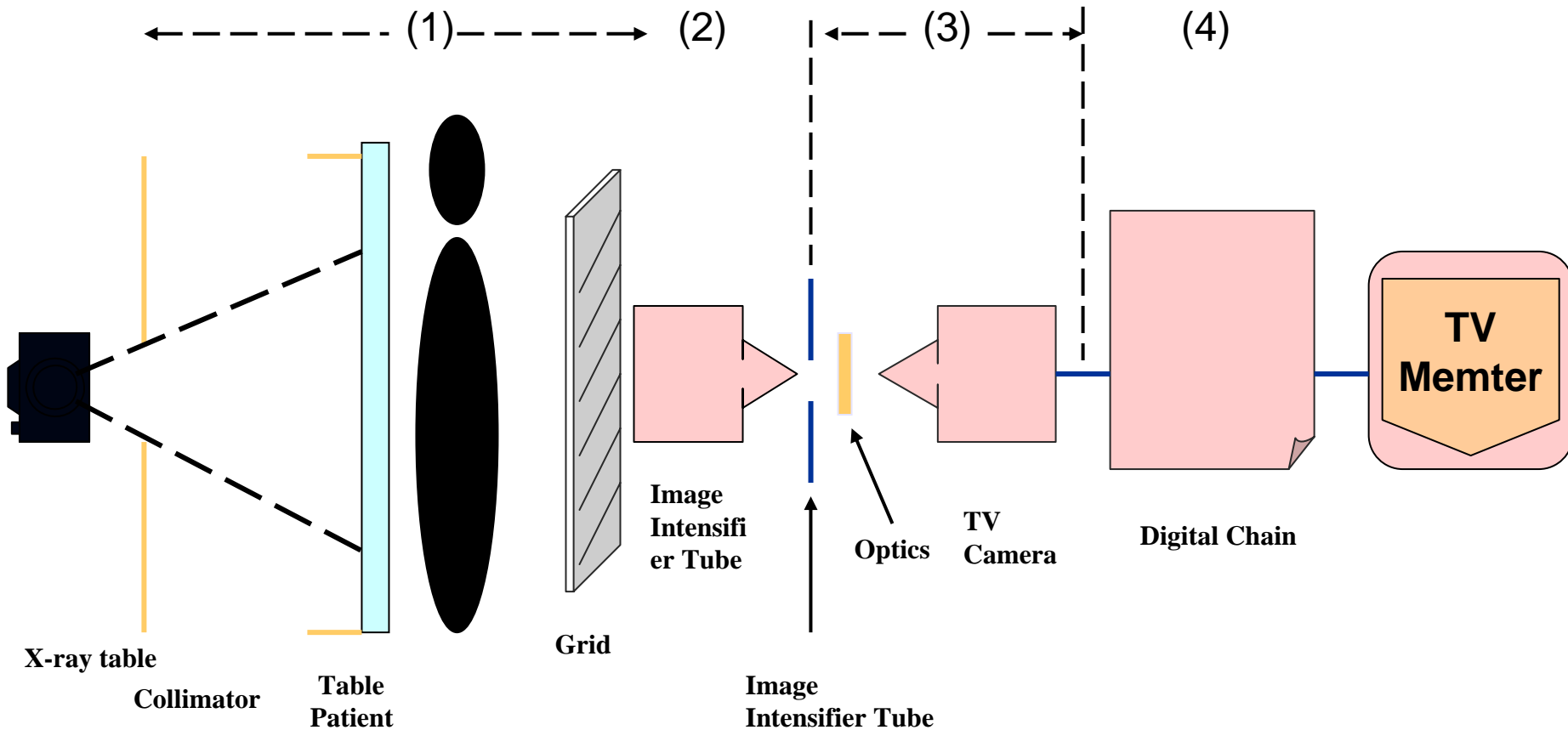
影像增強器 Image Intensifier







DF (Digital Fluorography)



X 光的能量與強度

- 能量 (kVp) 決定影像對比
- 強度 (mAs) 決定影像亮度與劑量
- 根據組織特性決定 kVp
- 根據組織厚度決定 mAs