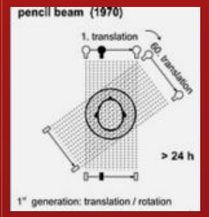
Early CT Scan designs
1970



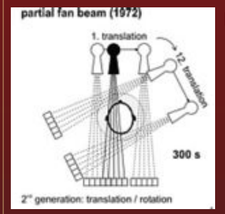
Pencil Beam, First generation/rotation

Early 1970's CT at EMI Laboratories
1971

Development of CT Technology
1972

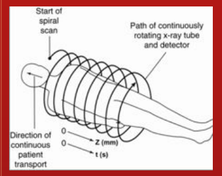
The first CT Technology was developed by Sir Godfrey Hounsfield in 1972. In 1979 he won the Nobel Prize in Medicine.

Early CT Scan designs
1972



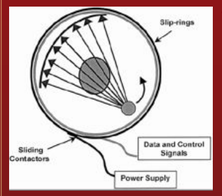
Partial Fan Beam, Second generation/rotation

Spiral CT Scans
1990



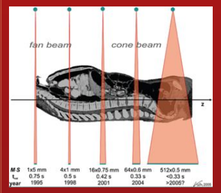
- Adds simultaneous motion of table
- Acquires a volume of data
- Increase speed: 1-2 seconds/slice

Spiral CT Scans
1990



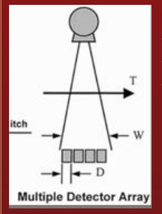
Third Generation design - Slip ring technology

Multidector CT
1998



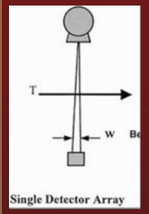
Fan beam and Cone beam
- Revolutionized CT
- Acquire large volumes of data rapidly

Multidector CT
1998



Multiple Detector Array
- Very thin, near isotropic voxels
- Makes CT a true multiplanar modality
- 2D MPR, MIP, VRT

Multidector CT
1998



Single Detector Array
Conventional Single Slice CT
- Patient motion
- Thicker slices
- Limited to axial plane

Dual Source CT
2005

- Two separate x-ray tubes and detectors
- Doubles the speed & temporal resolution: 0.33 seconds
- Increases spatial resolution with isotropic voxels: 0.24mm
- Primarily a benefit to Cardiac imaging

Definition of FLASH CT - Operates in 3 Modes
2009

1. Single Source Mode:
   75% routine scanning
2. Dual Source Mode:
   Cardiac mode
   FLASH mode (the need for speed)
   1 sec Chest or 3 sec C/A/P
3. Dual Energy Mode:
   Used for special applications
   Tissue Characterization

Siemens FLASH CT
2009

- 8th unit installed in the U. S.
- Spiral scanner
- MDCT: 128 slice
- Dual Source: two separate x-ray tubes
- 78cm Wide Bore opening
- 660 lb. table capacity
- Fastest scan speed: tube rotation @ 0.28 second Cover 43cm/sec

New Event
2011

1970 1975 1980 1985 1990 1995 2000 2005 2010 2015

YEAR OF DEVELOPMENT