Docket #: S10-262

Anode-based Method for Focal Spot Deflection in X-ray CT2

Stanford researchers have developed a system and method to increase sampling in x-ray and CT images by deflecting the focal spot of an x-ray tube. This invention achieves focal spot z-wobble by shaping the rotating anode. It is simpler than existing methods which uses electrostatic or magnetic deflection. Z-wobble can improve z-resolution and reduce z-aliasing artifacts (bearclaw or windmill artifacts). Good z-resolution and low artifacts are important advantages in CT scanners.

Figure

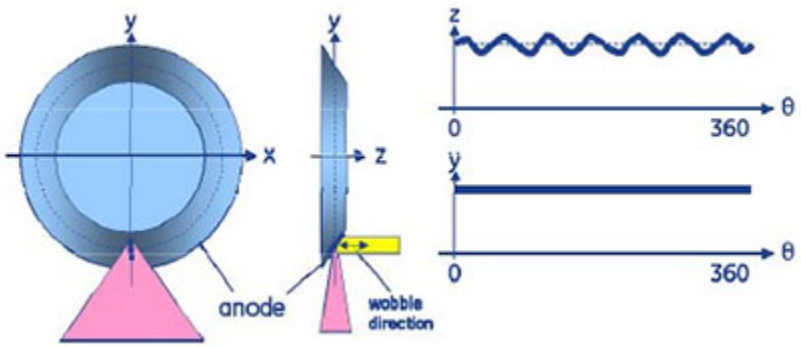


Figure description - The optimal number of “hills” and “valleys” on the anode depends on the anode rotation speed and the DAS speed.

Stage of Research:

- Prototype developed
- Tested various embodiments of this concept

Applications

- CT imaging
- Projection x-ray imaging

Advantages

- Design improvements include:
- Simplified cathode compared to electron beam z-deflection
- possibly simplified generator
- z-wobble in general has the potential to reduce so-called bearclaw or windmill artifacts and improve z-resolution

Patents

- Published Application: 20140177794

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