Docket #: S00-170

Method of Monitor unit (MU) calculation for intensity modulated photon field

Researchers in Prof. Lei Xing's laboratory have developed a simple and efficient method for MU calculation for intensity modulated beams. In Intensity Modulated Radiation Therapy (IMRT), a pressing issue is how to efficiently verify the MU calculation of the treatment planning system. This technology expresses the dose at a spatial point as a summation of the contributions from all beamlets, each being modulated by a dynamic modulation factor. The approach is independent of leaf sequence algorithms and delivery machines and its effectiveness was demonstrated by using several IMRT cases.

Applications

- IMRT - the technique can be used as a redundant check of IMRT treatment plans from an inverse treatment planning system

Advantages

- Low cost, easy to use, simple implementation
- Versatile - handles a variety of clinical situations, including off-axis dose calculation, inhomogeneous media, low dose region, patient contour variation
- Expandable - to deal with a variety of IMRT techniques, including MLC based IMRT, MIMiC, Tomotherapy and intensity modulated arc therapy.

Publications

- L. Xing, Y. Chen, J. Li, G. Luxton, and A. Boyer, Monitor unit calculation for an intensity modulated photon field by a simple scatter-summation algorithm, *Physics in Medicine and Biology* 45, N1-7, 2000.

Patents

- Published Application: 20030068009

Innovators

- Lei Xing

Licensing Contact

Chris Tagge

Technology Licensing Program Manager

Email