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# Medical Devices

Automatic Aperture Tracing

An automatic method of aperture tracing in preparing custom cutouts for electron radiation therapy

Cancer continues to present a pressing need for novel and effective treatment processes. Electron therapy is one such medical treatment that uses high-energy electrons to target and destroy cancerous cells. Electron therapy is commonly used for targets located superficially and/or in shallow depths because of its rapid dose-falloff. In electron therapy, a beam aperture is determined by a thick metal block (called cutout). These cutouts are manually traced by hand, making it time-consuming, uncertain, and labor-intensive. Therefore, new methods are needed to improve the efficiency of this procedure.

## The technology

Virginia Commonwealth University (VCU) researchers have developed a novel process for electron cutout preparation which eliminates manual preparation of cutouts that increases efficiency, timeliness, and certainty of electron radiation therapy. Custom cutout service companies and companies developing different particle therapies can take advantage of this innovative system to improve the process of electron radiation therapy.

VCU’s invention makes this process more straightforward by optically capturing the projected contour and automatically processing the image for cutout preparation with a novel device and process.

A collage of images of a method

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Figure 1. Comparison between the conventional and proposed method for electron cutout preparation

### Benefits

* Enhanced efficiency
* Increased Timeliness
* Reduction in Uncertainty

### Applications

* Electron Radiation Therapy
* Other particle therapies (e.g. Proton therapy)

#### Patent status:

Patent pending: U.S. and foreign rights are available.

#### License status:

This technology is available for licensing to industry for further development and commercialization.

#### Category:

Biomedical

#### VCU Tech #:

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