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IROC Houston QA Center
MD Anderson Cancer Center
8060 El Rio Street
Houston, TX 77054
Tel (713) 745-8989
Fax (713) 794-1364
Email: irochouston@mdanderson.org

Approved Algorithms for Lung Treatment – Photon and Proton

The following is a list of treatment planning systems (TPS) and algorithm for dose calculation tested by the IROC Houston through the irradiation of the lung phantom. This list is divided in Acceptable and Unacceptable to be used for the calculation of dose within a medium with heterogeneities. This list represents IROC's current knowledge of TPS/algorithm in use.

Acceptable

Accuray Multiplan: Monte Carlo
Accuray TomoTherapy: Convolution Superposition
Brain Lab iPlan: Monte Carlo
Elekta Monaco: XVMC Monte Carlo, Collapsed Cone Convolution, or Monaco PT
Elekta XiO: Multi-grid Superposition or Fast Superposition
Nomos Corvus: Monte Carlo
Phillips Pinnacle: Collapsed Cone Convolution or Adaptive Convolve
Prowess Panther: Collapsed Cone Convolution
RaySearch RayStation: Monte Carlo or Collapsed Cone Convolution
Varian Eclipse: AAA, Acuros, or AcurosPT
ViewRay: Monte Carlo
In House TPS: Monte Carlo

Unacceptable

Accuray Multiplan: Ray Tracing or Finite Size Pencil Beam
Best Medical Corvus: Pencil Beam
Brain Lab iPlan: Pencil Beam or Clarkson
Elekta XiO: Modified Clarkson, FFT Convolution, or Pencil Beam
Philips Pinnacle: Fast Convolve
Prowess Panther: Fast Photon
Varian Eclipse: PCS, Pencil Beam
In House TPS: Pencil Beam or Clarkson base

This list is updated based on statistics done over the results of the irradiation of the lung phantom for the new TPS/algorithm. If your TPS/algorithm is not listed, please contact the IROC Houston at 713-745-8989 or IROCHouston@mdanderson.org.

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