

AbstractID: 1597 Title: Treatment Plan Automation for 3D-Conformal Therapy

We have developed a fully automated planning tool for 3DCRT that simultaneously optimizes the beam angles, beam weights, wedge angles, and wedge orientations. The system provides a graphical user interface and interacts in a transparent fashion with the Pinnacle treatment plan system for dose calculation, plan evaluation and comparison. In addition, the system interfaces with a commercial optimization software package for plan optimization. In the prescription, the user specifies the number of allowable beam angles along with the dosimetric goals for the target and the sensitive structures. The tool has been evaluated using several patient cases including pancreas patients, head-and-neck patients and a breast patient. In each case, the optimized beam angles were chosen from either 36 or 72 candidate beams along with their corresponding wedged fields. The results demonstrate the ability of the tool to match the quality of the treatment plan produced by an experienced dosimetrist with an optimization time of less than 10 minutes.

