THE UNIVERSITY  OF HONG KONG

Department of Mathematics

Operations Research Group Seminar (ORG)

December 20, 2002 (Friday)
3:30pm
517 Meng Wah Complex, HKU

3:00pm – 3:30pm Cookies & Tea Time

Optimization of Treatment Planning via Mixed Integer Programming

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&
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Abstract

An automated optimization system for generating high quality treatment plans for cancer radiation therapy will be presented. The physical planning in radiation treatment involves selecting among a large collection of beams with different physical parameters an optimal beam configuration (geometries and intensities) to deliver the clinically prescribed radiation dose to the tumor volume while sparing nearby critical structures and normal tissue. The mixed integer programming models incorporate strict dose restrictions based on tumor volume, and constraints on the desired number of beams, couch angles, gantry angles, and biological critical factors. The model seeks to deliver full prescription dose coverage and uniform radiation dose to the tumor volume while minimizing radiation to the peripheral normal tissue. Clinical tests on a collection of patient cases will be described.

This research is joint with Tim Fox and Ian Crocker at Emory University School of Medicine.

All are welcome

For further information, please contact org@maths.hku.hk *or visit*
http://hkumath.hku.hk/~org