

AbstractID: 1220 Title: A dwell position verification method for high dose rate brachytherapy

Misplacement of dwell positions is a potential source of misadministration in high dose rate (HDR) brachytherapy. In this work we present a dwell position verification method using fluoroscopic images. A mobile C-arm fluoroscopic machine is used to capture an image of the check cable of a HDR treatment machine when it reaches the most distal dwell position during a treatment. The use of the check cable, instead of the active ^{192}Ir source, produces a fluoroscopic image free of noise signals. This verification image is compared with the treatment planning image, both of them displayed on a dual monitor relay station at the HDR treatment console. A difference between the position of the check cable and the intended first dwell position on the planning image can be easily identified, thus avoiding the treatment of a wrong site. Such a verification method requires minimum capital investment if a C-arm is available, and it can be easily implemented in a clinic.