Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Characterization and modeling of relative efficiency of optically stimulated luminescence Al_2O_3:C detectors exposed to heavy charged particles GABRIEL SAWAKUCHI, EDUARDO YUKIHARA, Department of Physics, Oklahoma State University — Medical dosimetry of heavy charged particles (HCPs) and personnel space dosimetry are becoming important areas with the development of new facilities for cancer therapy of heavy ions and the increase of human activities in space. In particular, the measurement of dose in the space radiation field is one of the most challenging problems in personnel dosimetry due to the presence of a mixture of different particles with a wide range of energies. HCP creates a pattern of energy deposition around its path which is a characteristic of the type of particle and its energy. Due to different spatial distribution of dose around the HCP path, the response of the dosimeter can be significantly different for different types of particles and energies. This work characterizes the optically stimulated luminescence (OSL) response of Al_2O_3:C personnel dosimeter to different HCPs and energies. Also, a model based on track structure theory to predict the OSL response of the dosimeter is presented.

Gabriel Sawakuchi
Department of Physics, Oklahoma State University

Date submitted: 20 Nov 2006 Electronic form version 1.4