

Abstract Submitted  
for the TSS09 Meeting of  
The American Physical Society

**Positron Spectroscopy Investigation of Normal Brain Section and Brain Section with Glioma Derived from a Rat Glioma Model** C.A. QUARLES, Texas Christian University, CHARLES BALLMANN<sup>1</sup>, Tarleton State University, S.H. YANG, University of North Texas Health Science Center — The application of positron annihilation lifetime spectroscopy (PALS) and Doppler broadening spectroscopy (DBS) to the study of animal or human tissue has only recently been reported. We have initiated a study of normal brain section and brain section with glioma derived from a rat glioma model. PALS lifetime runs were made with the samples soaked in formalin, and there was not significant evaporation of formalin during the runs. While early results suggested a small decrease in o-Ps pickoff lifetime between the normal brain section and brain section with glioma, further runs with additional samples have showed no statistically significant difference between the normal and tumor tissue for this type of tumor. DBS was also used to investigate the difference in positronium formation between tumor and normal tissue. Tissue samples are heterogeneous and this needs to be carefully considered if PALS and DBS are to become useful tools in distinguishing tissue samples.

<sup>1</sup>Participant in TCU REU, summer 2008, supported by NSF grant No. 0453577.

Carroll Quarles  
Texas Christian University

Date submitted: 13 Mar 2009

Electronic form version 1.4