

MALE AND FEMALE HUMAN BODY TISSUE RADIATION SHIELDING MODELS BASED UPON CT-SCAN DATA FOR ORGAN DOSE PREDICTION

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As present and future human space mission lengths are extended, it becomes increasingly important and valuable to have accurate analytic predictions of radiation doses to specific tissues within the body. New computational models are being developed to help predict the effective radiation shielding to points inside the human body provided by the surrounding body tissue. A female body tissue model, based upon a full-body CT-scan from the Visible Human Project, is presented along with a male body tissue model based upon a full-body CT-scan data set obtained from Johns Hopkins University. The advantages of using CT-scan based models are presented along with initial results and comparisons to previous models. Details of the data processing required to transform a raw CT-scan into a tissue shielding model are also presented.