Sunday, July 8, 2012
POSTER SESSION: SPACE PHYSICS AND TECHNOLOGY
7:00 p.m. Ambassador Ballroom

Aghara S. K. Hu X.
Radiation Environment Characterization on the Lunar Surface from SPE and GCR Interactions **[#8027]**
This paper will present radiation environment characterization on the lunar surface using Monte Carlo simulations for two primary environments: (1) Solar Particle Events (SPE); and (2) selected GCR heavy ions (carbon, oxygen and iron).

Cengel K. A. Sanzari J. Billings P. Diffenderfer E. S. Gridley D. Wroe A. Weissman D.
Kennedy A. R.
Towards a Personalized Dosimetry Approach for Astronauts: Combining Computational and Biological Modeling to Predict the Topography of the Energy-Dose-Toxicity Landscape for Solar Particle Event Radiation **[#8064]**
Our results predict major acute and subacute skin and internal organ toxicity may be a significant clinical problem in SPE exposed astronauts and that personalized, physiologically resolved, event specific dosimetry will be clinically valuable.

Cucinotta F. A. PhD Kim M. Y. PhD
Pion Absorption and Nuclear Fragmentation Using the QMSFRG Model **[#8074]**
Pions are produced as secondary radiation by GCR. For describing pion transport in shielding/tissue, interaction cross sections for pions with target atoms are needed. We consider the QMSFRG model to calculate π^+, π^-, and π^0 cross sections.

Plante I. Cucinotta F. A.
Green's Functions of the Diffusion Equation for Simulation of Chemical Species in Biological Systems **[#8107]**
In this work, we present an approach based on Green's functions of the Diffusion Equation to simulate stochastic systems. Two applications, the activation of the molecule TGF-beta in cell cultures and simulations of bi-molecular reactions are presented.

Dingfelder M. Jorjishvili I. G.
Heavy Ion Track Structure Simulations in Liquid Water and Bone **[#8046]**
We present new interaction cross sections for electrons, protons, and alpha particles with (metallic) calcium, a major component of (trabecular) bone and the implementation of a transport model into MC track structure codes.

Kim M. Y. Ponomarev A. L. Cucinotta F. A.
A Hybrid GERMcode-HZETRN Model for Studying Light Particle Transport Physics **[#8056]**
A hybrid model using the stochastic GERMcode and the deterministic HZETRN is developed to couple the light and heavy particle production events, in which the energy conservation in nuclear fragmentation and the distribution of particle multiplicities are considered.

Saganti P. B. Burks D. R. Erickson G. M. Cucinotta F. A.
3D Visualization Depicting the Far Side of the Sun: Radiation Risk Assessment **[#8124]**
Making use of the SWAN (Solar Wind Anisotropies) data from the SOHO spacecraft we have been analyzing the far side images of the solar disk in the pursuit of solar activity predictions of one to two weeks prior to their appearances in the visible part of the solar disk.