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FLUKA Status and Preliminary Results from the High Energy AGS July Runs

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ABSTRACT

As reported in prior WRMISS workshops, the FLUKA Monte Carlo code is being modified as part of NASA's Space Radiation Shielding Program for use in simulating the Space Radiation environment in order to evaluate the properties of spacecraft and habitat shielding. Since the last workshop, several notable enhancements have been made to the FLUKA code itself and the ancillary support software. These include improvements to the GUI-based packages for analysis of the results as well as GUI-based tools to ease the setup and running of the programs. Examples of these will be presented.

From the physics perspective, an accelerator run this July at the AGS was undertaken in collaboration with the groups from LBL and MSFC to measure the fragmentation, neutron and secondary charged particle spectra from Fe, Si and C beams at 3, 5 and 10 GeV/A on a variety of targets including C, Al, Fe, Cu and Polyethylene. This energy range is the crossover point in event generator technique and the data will help guide the evolution of the event generators in this crucial region. Preliminary results from this run will be presented for the angular distribution of the secondary charged particles from scattering angles of 3-45 degrees along with normalized comparisons to RQMD and DPMJET, the event generators that are currently employed within FLUKA.