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**Candice Rockell\*** (crockell@odu.edu), Old Dominion University, Department of Mathematics and Statistics, Norfolk, VA 23529, and **Dr. John Tweed**. *A Green's Function Technique for Radiation Transport in Three Dimensions*.

In the near future, astronauts will be sent into space for longer durations of time compared to previous missions. The radiation that they will be exposed to, which includes Galactic Cosmic Rays (GCR) and Solar Particle Events (SPE), is of great concern to the health and wellness of these astronauts. A study of the mathematics behind radiation transport through shielding materials will be described where the equation of interest is the Boltzmann equation. By making use of the continuous slowing down approximation, the Boltzmann equation is transformed into a Volterra integral equation, which is then solved by the Neumann series method. This solution consists of a series of Green's functions. At this time, we will address the Zero Order and First Order Green's functions which model the primary ion flux and first generation fragment flux respectively. The rest of the Neumann Series will be approximated using a non-perturbative approach. (Received September 17, 2009)