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An Investigation of Light Ion Production from Coalescence in Nuclear Collisions WOUTER DE WET, LAWRENCE TOWNSEND, Univ of Tennessee, Knoxville, CHARLES WERNETH, RYAN NORMAN, JOHN NORBURY, TONY SLABA, NASA Langley Research Center, WILLIAM FORD, None — The biological risk posed by the diverse radiation space environment must be carefully considered when assessing crew safety. Detailed knowledge of both the radiation field and the associated doses are necessary to fully understand potential biological consequences. Fragmentation cross-sections are predicted by nuclear collision models and used by radiation transport codes to calculate these quantities. There are significant discrepancies between the magnitudes of light ion production cross sections that are used in various transport codes. These discrepancies stem from differences in light ion production mechanisms, among other factors, in nuclear models. One such production mechanism is the coalescence of abraded nucleons into light ions. In this work, light ion production cross sections, as calculated by the coalescence model implemented in the Relativistic Abrasion-Ablation and De-Excitation Fragmentation code (RAADFRG), are evaluated and compared to experimental data.

Wouter de Wet
Univ of Tennessee, Knoxville

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