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## A Study of Radiation Doses Experienced by Astronauts in EVA

The aim of this program is to determine the levels of radiation dose received to the skin, eyes, and blood forming organs (BFO) of astronauts in EVS. In the longer term this information will be important in the overall field of Space radiation Dosimetry since it will help determine which parts of the human body are exposed to the highest doses and under which EVA situations this arises. Such information is required to determine radiation protection criteria for Space Station crew.

The research will be based on calculations of expected doses to the various parts of the astronaut's body and the contribution to dose from electrons and protons. Electronic MOSFET dosimeters will be calibrated on the ground with appropriate radiation. A number of different types of small MOSFET dosimeters will be worn by astronauts during EVA and the doses experienced in EVA are measured and recorded on board the spacecraft. In addition to dose information, EVA activity and Space Station orbital information will be recorded for final analysis. It is proposed that a Space Station Flight of 30 days should provide adequate data for a number of EVA activities. The MOSFET dosimeters and their reader will be available for this program.

The data will be analyzed to determine (a) overall dose levels experienced in EVA, (b) variation of dose to skin, eye, and BFOs, (c) orbital factors, and (d) degree of shielding afforded by the EVA suit and the spacecraft structure. Recommendations and guidelines for possible implications in astronaut radiation protection will be made.