Hazardous ionizing radiation levels pose a serious occupational health risk for astronauts on long-duration missions. The Space Radiation Health Program within the Life Sciences Division of the National Aeronautics and Space Administration supports scientific research into the radiation protection of humans engaged in the exploration of space, with particular emphasis on the establishment of a firm knowledge base to support cancer risk assessment for future planetary exploration. This research includes studies of the fundamental mechanisms of radiation effects on living systems and the interaction of radiation with cells, tissues, and organs, and the development of instruments and processes for measuring radiation and its effects. Researchers active in the NASA Space Radiation Health Program meet annually to share the results of their work, and explore new directions of research that may benefit the NASA program. The coordination of this workshop with the annual meeting of the Radiation Research Society is intended to offer the radiation research community an opportunity to participate in this exciting activity. Ongoing research projects will be reviewed at the workshop and new findings and future research opportunities will be discussed. This workshop is open to all interested investigators.
TENTATIVE PROGRAM:

Chairman: C.-H. Yang (JSC)

A. PROGRESS REPORTS (15 min. ea)

Space Radiation Health Program Overview (W. Schimmerling)

1. Physical sciences
   - Adams: Updated space radiation environment model
   - Miller: Radiation interactions in tissue
   - Seltzer: Predictions of dose from electrons in space
   - Townsend: Radiation transport in tissue

2. Cellular and molecular radiobiology
   - Kronenberg: Mutations in human lymphocites
   - Lett: Radiobiological studies" Task V
   - Wiley: Response of the male germ cell
   - Worgul: Space radiation effects on neurogenesis

3. Tissues and organisms
   - Alpen: Tumorigenic potential of HZE radiation
   - Cox: Long term life expectancy radiation effects
   - Lindgren: Rodent lens epithelium
   - Wood: Energetic proton dose-response
   - Yang: Neoplastic transformation of human cells

4. Models and risk assessment
   - Brenner: Inverse dose-rate effects
   - Sinclair: Guidance on space radiation risks
   - Curtis: Model calculations for risk assessment
   - Wilson: Cost-effectiveness model for radiation research in space exploration

B. SPACE FLIGHT EXPERIMENTS (15 min. ea)

   - Badhwar: International radiation dosimetry
   - Benton: Analysis of HZE Particle Dose
   - Nelson: Space radiation studies with *C. elegans*
C. FUTURE DIRECTIONS (30 min. ea)

Hall     Future directions in cellular space radiobiology
Ainsworth Future directions in animal studies
Fry      Interspecies extrapolation