

Fourth Annual Space Radiation Health Investigators' Workshop  
**Apr 26- Thu, Apr 28, 1994: Houston, TX**

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 lymphocytes  
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