

# IRPA 10

## TOPICAL SESSIONS Reports of Co-Chairmen for Highlight Sessions

### ***T-24: Recent Progress on Non-Ionizing Radiation Protection*** *Thursday, 18 May 2000*

Chair and Keynote: D. Sliney

Co-Chair: T. Koana

The Chairman, in his introductory remarks, pointed out current issues in non-ionizing radiation protection, including the improvement of protection methods against UV irradiation, updated worldwide standards for lasers, and also the public concerns for cellular phones and power lines.

The **keynote** paper given by **Dr. Sliney** was entitled "What is the meaning of threshold in laser injury experiments?". Generally, ED<sub>50</sub>, the exposure which represents a 50% probability of injury is referred to as threshold. Theoretically, it is not a mistake to use ED<sub>50</sub> as threshold value, but in actual experimental data the steepness of the probit plot is affected not only by natural biological variation, but also by the impact of experimental errors. When the steepness is less, an irradiation far below the "threshold" should have an unacceptable risk. Although the title of the lecture is on threshold in laser injury experiments, it is obvious that these discussions can be applied also to various non-ionizing radiations including ELF, RF etc. The meaning of threshold is a very important issue in non-ionizing radiation protection, which was emphasized and highlighted in this lecture.

**Dr. Koana** reported on the mutagenicity of ELF magnetic fields in Drosophila models of ATH mutants. The conclusions of this paper were that

- some kinds of mutations are caused by exposure to a strong ELF magnetic field
- the eddy currents below the ICNIRP guideline (10 mA/m<sup>2</sup>) may possibly cause mutation in humans who possess defects in their DNA function. Although they can apparently not be discriminated from people with normal repair functions, they have certain defects in their repair functions.

Consideration from a genetic point of view is necessary in the determination of a guideline for ELF exposure.