INSTITUT FÜR ISOTOPENFORSCHUNG UND KERNPHYSIK
DER UNIVERSITÄT WIEN

E I N L A D U N G

zum

S E M I N A R V O R T R A G

von

Marian Cholewa

GSI, Darmstadt

High resolution nuclear and X-ray microprobes and their role in biology and medicine

Investigations of uptake of different chemical compounds by single cells has become a very popular topic and has been performed with different microanalytical techniques using electron, laser, ion and X-ray beams. With the advent of nuclear and X-ray microprobes with submicron resolution it has been possible to investigate distribution of different elements inside individual cell with sensitivity of parts-per-billion (ppb).

There is now considerable interest in the application of different micro-irradiation techniques using X-rays or ions for radiobiological applications. The strength of the micro-irradiation technique combines its ability to deliver precise doses of radiation and spacial resolution of 1 μm or better. This allows the irradiation of single biological cells *in vitro* or precisely preselected targets within cells. At present, there are only three centres performing radiobiological research with established microprobes which precisely deliver a defined number of ions to single biological cells.

At GSI, Darmstadt we have decided on the development of a horizontal system which is cheaper to develop and requires only the adaptation of an existing heavy ion microprobe. At GSI a focused system is being developed, with heavy ions (from Carbon up to Uranium) and beams with energies up to 11.4 MeV/nucleon. This combination of mass and energy will make the facility unique in the world.

In this talk author will present and discuss the role of high resolution nuclear and X-ray microprobes in modern biology and medicine.

Donnerstag, 12. Juni 2003, 16:30 Uhr

1090 Wien, Währingerstr. 17, "Kavalierstrakt",
1. Stock, Seminarraum von VERA

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