

Advanced Beam Systems Engineering, Advanced Electromagnetic Energy Engineering, Division of Electrical, Electronic and Information Engineering, Graduate School of Engineering

Beam technology has come to play a large role for the support of the modern society. A new manufacturing method is developed through the technique of beams controlled precisely in the respects of the energy, time and space. In the area of *Advanced Beam Systems Engineering*, there have been developed a very thin ion beam, multicharged ion beams, an X-ray microbeam and various atomic cluster beams, and their applications have been also studied. Moreover we have constructed user-friendly beam systems controlled through the Internet. We aim at the establishment of the beam technology for the future.

Prof. Toshiyuki Iida

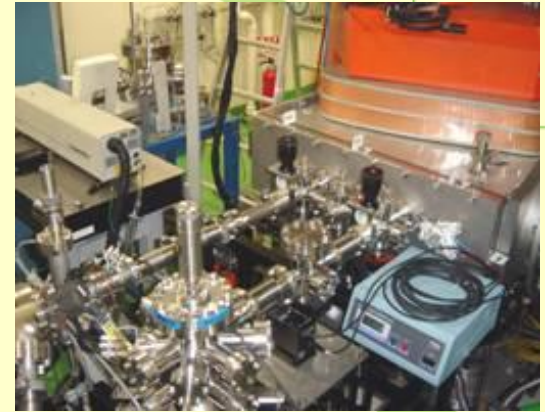
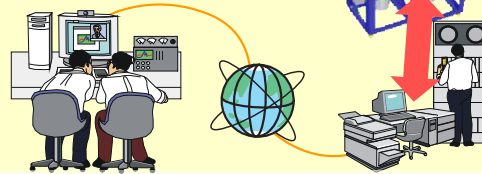
iida@eei.eng.osaka-u.ac.jp

Associate Prof. Yushi Kato

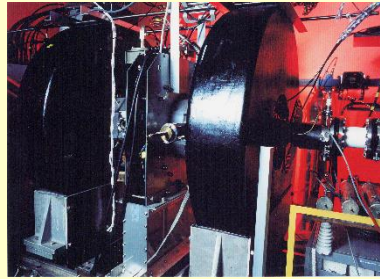
kato@eei.eng.osaka-u.ac.jp

Assitant Prof. Fuminobu Sato

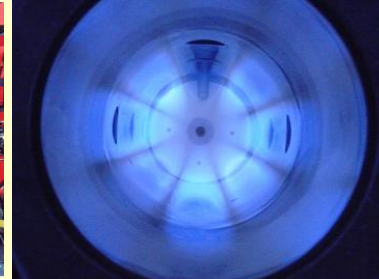
fsato@eei.eng.osaka-u.ac.jp



Ion Accelerator The maximum power is 200 kV x 5 mA. Almost all kinds of ions are available. The accelerator and ion irradiation system can be controlled remotely through the Internet.



Tandem-type ECRIS



ECR Plasma

Electron cyclotron resonance (ECR) ion/plasma sources have been widely used for production of high intensity multicharged ion beams for accelerators, atomic physics experiments, and industrial applications as well as heavy ion radiotherapy of cancer.

X-ray Microbeam System for Targeting a Single Cell

We developed a tabletop X-ray microbeam system for the research of radiation effects on cells. Microbeam techniques have provided opportunities to deliver precise doses to pre-selected individual cells. We investigate the radiation effects such as cellular inactivation, radiation mutagenesis and oncogenic cell transformation.

