International Symposium on Portable Synchrotron Light Sources and Advanced Applications

Synchrotron radiation has led to many innovations in material and life science. The construction of huge facilities such as the Spring-8 was the trend in the 20th century. Recently, big efforts are, however, made on down sizing the light source to open up its wider applications and new research fields. Significant progresses have been made in the laser-plasma and laser-Compton x-ray sources.

At Ritsumeikan University portable synchrotrons with electron energy as low as 6-MeV and an electron orbit diameter as small as 15cm has been developed. The brightness of x-ray generated by novel method is comparable to that of GeV synchrotrons. Intensity of IR synchrotron lights from the 20 MeV version has reached more than 10W on average by a mirror technique to integrate emission from the whole electron orbit.

Symposium will be held at **Ritsumeikan University** in Kusatsu on **January 13, and 14, 2004**. Topics include instrumentation, applications of brilliant hard x-rays, and infrared rays in the field of **the life science, biology, medicine, chemistry and industry** as listed below.

Instrumentation

- MIRRORCLE-20 the portable synchrotron for IR production
- MIRRORCLE-6X the 50cm OD synchrotron for hard x-ray production
- Laser-Compton x-ray source
- Plasma x-ray laser
- Photon Storage Ring Laser
- Imaging and Hard X-ray Microscope
- Protein Crystallography
- Fluorescent Analysis of Heavy Elements
- M- and F-IR Irradiation System for protein dynamics

X-ray Beam Applications

- Medical (Diagnosis, Angiographies, Cancer therapy)
- Biological (Protein Crystallography, Hard x-ray microscope, Ca and heavy elements monitoring in a human body and envelopment)
- Industrial (X-ray Lithography, Non-destructive inspection, sterilization)

M- and F-IR Beam Applications

- Medical (Hypothermia, Arteriosclerosis)
- Biological (Dynamics of protein in water, Water liquid structure, Behavior of single cells under IR irradiation)
- Industrial (Selective chemical reactions)

Experiences in the field of synchrotron radiation are not required. Colleagues who are seeking to expand his research by the brightest x-rays and infrared rays are welcome. Operation of the portable synchrotrons will be demonstrated. We will announce the invited speakers and the tentative program in the next circular in October. Your suggestion on the speakers is quite welcome.

Symposium is sponsored by the Synchrotron Light Life Science Center (SLLS) established by the MEXT 21st Century COE Program. Please contact with, **H. Yamada; Director SLLS (hy@se.ritsumei.ac.jp), J. Chikawa (chikawa@cast.jp), or Y. Taniguchi (taniguti@se.ritsumei.ac.jp).**