

International Workshop on Synchrotron High-Pressure Mineral Physics and Materials Science

Convenors

T. Irifune (GRC, Ehime University)

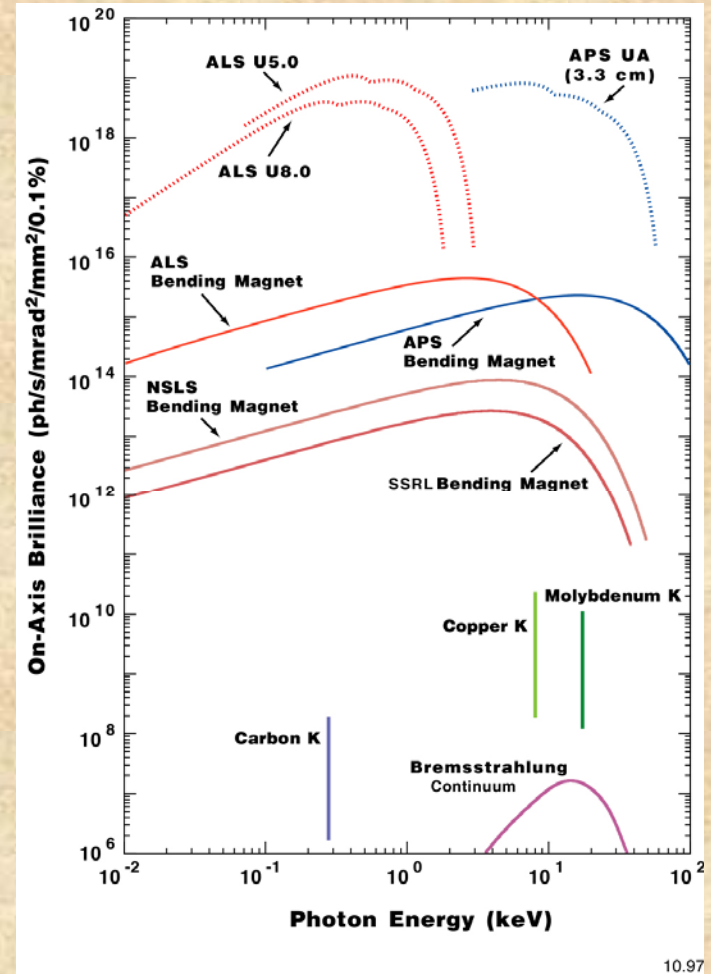
and

Y. Wang (GSECARS, University of Chicago)

Welcome!

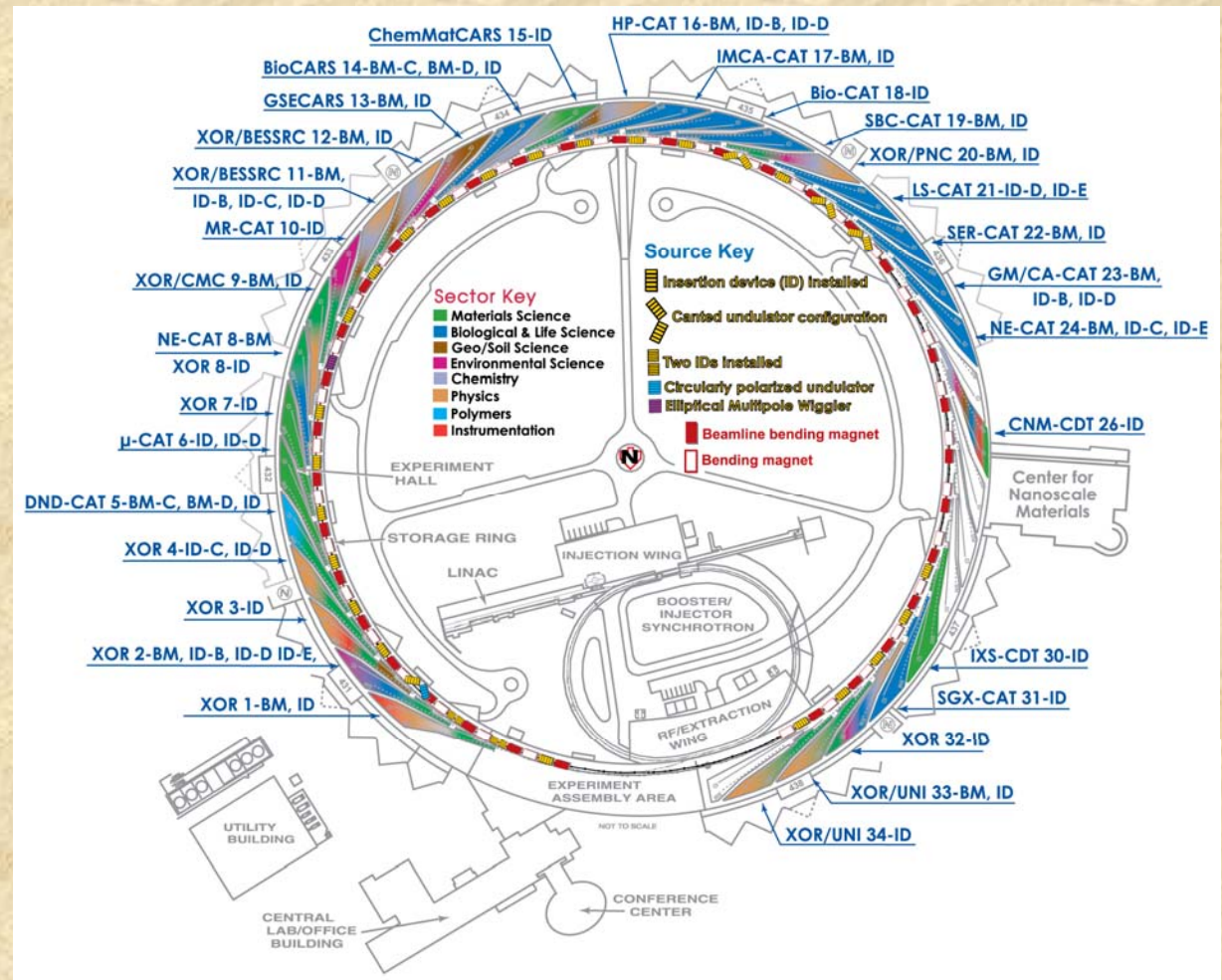
High-Pressure Research at the APS

- APS is a 7 GeV storage ring with undulator and bending magnet sources
- Both provide high brightness at high-energy, very useful for high-pressure research



Major beamlines for high-pressure research

- **HP-CAT (sector 16)**
 - 100% high pressure, undulator (2 stations) and bending magnet (2 stations)
- **GSECARS (sector 13)**
 - ~50% high pressure, undulator (2 stations), and bending magnet (2 stations)
- **Sector 3**
 - Nuclear resonance scattering
- **Other sectors**
 - Sector 1, 11 (high-energy), 30 (inelastic scattering)



GeoSoilEnviroCARS

Operate a national user facility at the APS for the conduct of frontier experiments in earth, planetary, soil, and environmental sciences.

Supported by DOE-Geosciences and NSF-Earth Sciences

100% of time available to community through General User Proposals

Techniques available to the scientific community

- **Energy-dispersive and monochromatic diffraction and spectroscopy in the diamond-cell**
- **Inelastic scattering in the diamond-cell**
- **Energy-dispersive diffraction and imaging in a 250 ton multi-anvil press**
- **Energy-dispersive and monochromatic diffraction in a 1000 ton press**
- **Microprobe and microspectroscopy**
- **Microtomography**
- **Surface scattering and spectroscopy**
- **Microcrystal and powder diffraction**

HP-CAT

Dedicated to high-pressure research. Collaboration of members (Geophysical Lab, UNLV, LLNL, CDAC).

Supported by members and DOE.

25% of time available to community through General User Proposals, remainder for members and development

Techniques available (all are DAC)

- **Laser-heated diffraction**
- **Nuclear resonance scattering**
- **Inelastic scattering and spectroscopy**
- **Energy-dispersive diffraction**
- **Single-crystal diffraction**
- **Shock wave experiments (new)**

HPSynC

New project

- **Infrastructure team dedicated to development of novel HP synchrotron techniques at APS**
- **Bridge between APS beamlines (not normally used for high-pressure research) and the high-pressure user community**
- **Virtual beamline for high-pressure research**
 - **Portable HP systems, laser heating**
 - **Sample preparation laboratory**
- **Staff**
 - **3 staff scientists, 2 post-docs, administration**