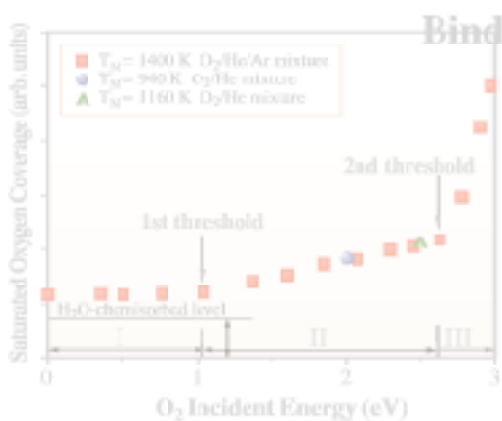


CHEMICAL SCIENCE

The highly brilliant light from SPring-8, covering the whole range of the wavelength from hard X-rays to far infrared, is very useful not only in the physical sciences but also in the chemical sciences. Soft X-ray undulator beamlines (BL23SU, BL25SU, BL27SU) are particularly useful in chemical studies, because the inner-shell excitation/ionization energies of elements of chemical interest lie in the soft X-ray region. Taking advantage of the very high resolution of these beamlines, an increasing number of high quality studies in spectroscopy and dynamics, both in the gas phase and on the surfaces, has been performed over the years since the commissioning of each beamline. Another important field of chemistry is catalysis, in which the characterization of catalysts containing heavy elements constitutes an essential part of the study. For such characterization, high-energy XAFS beamlines have been successfully used. These include BL01B1 which provides hard X-rays of energies of over 70 keV. Metal clusters in the gas phase, which have attracted a great deal of attention in recent years, have also been uniquely studied using an XAFS technique on another hard X-ray beamline BL10XU, where undulator radiation is available. Infrared beamline BL43IR has also started to yield new results of chemical interest.



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