

List of Synchrotron Radiation Experiments

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SPring-8 opened for research in October 1997 and holds two calls per year for proposals to use public beamlines. The results in the first research period 1997B (from October 1997 to March 1998) are recorded in the annual report 1997. The results in the second period 1998A (from April to November 1998) are to be recorded in this annual report. However, we have already issued SPring-8 User Experiment Report No.2 (1998A) and opened on the Web

(http://www.spring8.or.jp/ENGLISH/user_info/user_ex_repo/).

The contents of the report are the collection of papers submitted by users in their experimental report forms within 60 days after their experiments. In this annual report, therefore, only the titles of Experiments are listed. If the reader want to know more, please visit our website

(http://www.spring8.or.jp/ENGLISH/user_info/user_ex_repo/).

List of Synchrotron Radiation Experiments

<i>title</i>	<i>first author</i>
BL01B1	
XAFS study on implanted Cu ions in silica glass	H. Kageyama
XAFS Study of the Local Structures in Perovskite-type Solid Oxide Crystal Electrolytes	T. Yao
XAFS Study on the Local Structure Change around Silver in Zeolite.I.Performance Test of BL01B1 toward Ag K-edge Spectrum	H. Sakane
XAFS Studies on Metal Ion Photocatalysts Incorporated within Zeolite Cavities	H. Yamashita
XANES study of mechanically alloyed Y ₂ Ni	I. Nakai
XAFS Study on Electronic Structure in Eu@C ₆₀	Y. Kubozono
XAFS Studies on Pd,Ag Particles Supported on CeO ₂	Y. Matsumura
K-edge XAFS of rare earth elements in oxides,carbides and nitrides	T. Nakagawa
General evaluation of XAFS beamline I - XAFS in the high energy region	Y. Nishihata
XAFS study on liquid Te and I under high temperature and high pressure	Y. Katayama
Wavelength Dpendence of Diamond Detector for X-ray Beam Position Monitor	H. Aoyagi
XAFS analysis of heavy elements in accumulators	H. Hashimoto
Solvation Structures of Iodide Anions in Various Solvents	I. Watanabe
Total-Reflection XAFS of Aqueous Solution Surface	I. Watanabe
Studies on the Structure of Pd Supported on Zeolite by XAFS	K. Okumura
Semiconductor to Metal Transition and Local Structure in Arsenic Tellurides	T. Miyanaga
Structual Analysis of Tin-doped Indium Oxide (ITO) Thin Film by XAFS Spectroscopy	N. Umesaki
Conversion-helium ion yield XAFS at La K-absorption edge	M. Takahashi
Local Structure and Magnetic Property for Hard Magnetic Material Sm ₂ Fe ₁₇ N _x	H. Kasatani
Characterization of BL01B1	S. Emura
Characterization of specific elements accumulated in marine biomineral	C. Numako

XAFS Analysis for the Local Structures of Noble Metal - Ceria Catalysts	H. Kanai
Analysis of local structure and perpendicular magnetic anisotropy of GdCo and GdFe thin films	Y. Fujiwara
Local Structure of Erbium Doped Glasses Studied with XAFS Measurements	K. Haga
The Local Structural Analysis of Sb Catalyst in PET polymers	H. Kobe
Evaluation of Energy Resolution of BL01B1 Using XANES Spectra of Various Metal Ions	T. Tanaka
EXAFS Measurements of Nd ³⁺ -doped Glasses on the Nd K-edge	H. Yamaguchi

BL02B1

Structure Analysis of Sodium Paradodecatungstate on BL02B1 of SPring-8	T. Ozeki
Precise Crystal Structure Analysis of K ₃ H(SO ₄) ₂ by High Energy X-ray Diffraction Method	H. Kasatani
Micro-Crystal Structure Analysis and Its Application to the Study of Photo-Induced Structural Change of the Metal Complex	K. Toriumi
Small Crystal Diffraction Experiments on Bicapped C ₆₀ /γ-cyclodextrins Complex	Y. Kai
Crystal structural Analysis of the Fullerene Compounds by the Maximum Entropy Method	E. Nishibori
Defect structure in pure Ni irradiated with iodene ions and electrons	T. Matsui
Powder Deffraction of Chang Disproportionate Perovskite and Layered Pervskite Oxides of CaFeO ₃ and Sr ₃ Fe ₂ O _{7-x}	S. Morimoto
Structure analysis of a SrTiO ₃ perovskite single crystal at 3.5GPa using hard x-rays of 30keV	N. Hirai
Development of Electronic Excited State Crystallography by Imaging Plate Detector	Y. Ozawa
High-Resolution Powder Diffraction Experiments at BL02B1	H. Toraya
Precursor Phenomena on the Ferst-Order Phase Transition in Ferroelastic Compouds II	Y. Kuroiwa
Phase Transition of Hexagonal BaTiO ₃	Y. Noda
Lattice Modulaion and Charge Ordering Associated with the Spin Ordering in CeP	Y. Noda
Chrage Ordering in Vanadium Compoud	Y. Noda
Eledtron distribution of hydrogen atom of squaric acid in high pressure phase	Y. Noda
Lattice Modulation and Charge Ordering in La _{2-x} Sr _x CuO ₄ (x=1/8)	Y. Noda

Crystal Structure of Polysynthetic Twinned Phase in A_2BX_4 -type Ferroelectrics	H. Shigematsu
X-ray study of phason strains in Al-Pd-Mn and Al-Ni-Co decagonal quasicrystals	Y. Matsuo
Crystal structure analysis of zeolite using high resolution powder diffraction and anomalous dispersion effect	Y. Toriumi
Precise Measurements of Lattice Parameter Mismatch between γ and γ' Phase In Ni Base Alloy	T. Sakon
The Structure of thin tantalum oxides on silicon substrates	S. Yasuami
X-ray Structure Analysis of Host-Guest Organic MicroCrystals	Y. Takenaka
Structural Fluctuation in a Disordered Ternary Alloy	S. Hashimoto
Nature of Atomic Disorder in Relaxor Ferroelectrics of PMN and PSN	H. H.Chen
Single crystal X-ray diffraction of the phase transformation in solid C_{70}	T. S.Radhakrishnan
Crystal Structure Analysis of a Cobaloxime Complex	H. Uekusa
Highly Accurate Measurement of Electron Density Distribution in Transition-Metal Complexes with SR and Vacuum Camera	K. Tanaka
Structure Determination of Small Crystals of Organic functional	M. Yasui

BL04B1

The Structural Change near the Semiconductor-Metal Transition in Arsenic Chalcogenides	H. Endo
Olivine to Modified Spinel Phase Boundary in the System $(Mg,Fe)_2SiO_4$	M. Matsui
X-ray Diffraction Measurements for Expanded Fluid Mercury	K. Tamura
X-ray Diffraction Measurements for Expanded Fluid Selenium	M. Inui
In-situ Measurement of Rheology of Silicate Garnet at High Pressure and Temperature Conditions	J. Ando
The determination of the P-T phase diagram of $PbZrO_3$	S. Endo
In-situ x-ray observation of graphite-diamond transition using catalysts under high pressures and high temperatures	W. Utsumi
Effect of heating on the first sharp diffraction peak for amorphous SiO_2 under high pressure	N. Kitamura
In-situ X-ray diffraction study of crystallization process of Nd-Fe-B amorphous alloys under high pressure	S. Hirosawa
Structure of Liquid Tellurium at High temperatures	K. Tsuji
Structure of Liquid Chalcogen under Pressure	K. Tsuji
Hydrostatic compression of cristobalite(SiO_2) using SPEED 1500	M. Yamakata

In situ X-ray diffraction study on kinetics of decomposition of spinel Mg_2SiO_4 to periclase MgO and perovskite MgSiO_3	T. Kubo
Establishing equation of state of MgO and MgSiO_3 perovskite based on simultaneous measurements of acoustic velocity and density	A. Yoneda
High pressure and high temperature in situ X-ray observation of hydrous wadsleyite, $\text{Mg}_{1.75}\text{SiO}_4\text{H}_{0.5}$ under the condition of the mantle transition zone	T. Inoue
Preliminary results on in situ X-ray observations of the spinel-postspinel transformation in a pyrolite composition	T. Irifune
Precise determination of the phase boundaries among ilmenite, garnet and perovskite structures in MgSiO_3 by in situ x-ray observations	K. Kuroda
The precise determination of the reaction from spinel to perovskite and periclase in $\text{Mg}_2\text{SiO}_4\text{-Fe}_2\text{SiO}_4$	T. Katsura
High-pressure and high-temperature in situ X-ray diffraction experiments of $(\text{Mg,Fe})\text{SiO}_3$ enstatite and ilmenite	K. Fujino
Structural Analysis of Supercritical Water	Y. Ohmasa
High Pressure and Temperature Phase of ZrO_2	O. Ohtaka
X-Ray Diffraction Experiments on the Fe-FeS Eutectic Melt at 10 GPa	S. Urakawa
In-situ viscosity measurement of $\text{NaAlSi}_3\text{O}_8$ (albite) melt at high pressure	M. Kanzaki
Subsolidus Transition from Wadsleyite (beta Phase) to Spinel (gamma Phase) in the System Mg_2SiO_4 as a Function of Pressure and Temperature	M.J. Walter
Calibration of cubic anvil cell using sintered diamond	S. Ono
In Situ Observation of the Ilmenite-Perovskite Phase Transformation in Mg_2SiO_3 Using Synchrotron Radiation	S. Ono
Phase equilibrium study of grossular garnet ($\text{Ca}_3\text{Al}_2\text{Si}_3\text{O}_{12}$) under high pressure and temperature	T. Yagi
Determination of phase transition pressure in GaP	T. Yagi

BL08W

An Attempt to Change the Half-Lives of β -Decay Nuclides	H. Baba
Performance of a 100-150 keV Monochromator for High Energy Synchrotron Radiation	H. Yamaoka
Evaluation of 90° -Scattering Magnetic Compton-Profile method with High Energy X-Rays	M. Seigo
Observation of Anisotropic Magnetic Compton Profiles of hcp-Co	Y. Kakutani
β -Ce magnetic Compton Profile Measurement by Helicity Switching Method	N. Hiraoka

Orbital distribution of Mn-3d (e_g) electrons in the perovskite system $\text{La}_{1-x}\text{Sr}_x\text{MnO}_3$ A. Koizumi

High-Energy X-ray Diffraction Experiment on GeO_2 Glass K. Suzuya

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The nuclear resonant scattering beam properties on the various rotation times of the hyper fine field in the magnetic material T. Mitsui

Development of Nuclear Resonant Inelastic Scattering Technique M. Seto

X-ray inelastic scattering of Hemoproteins T. Harami

Surface Structure Analysis of Solid Liquid Interfaces M. Nakamura

Nuclear forward scattering on andradite at hydrostatic pressures to 43 GPa L. Zhang

Nuclear Resonant Scattering Study of the Dynamics in Polymer Gels K. Hara

Structure Analysis of Semiconductor Electrode Surfaces by X-ray Standing Wave Method M. Takahasi

Nuclear Resonant Scattering of Ferromagnetic Amorphous Ribbon S. Nasu

Improvement of sensitivity for detecting strains in silicon using highly collimated x-rays Y. Kudo

Measurement of Internal Conversion Electrons from Monatomic Layers on Surfaces T. Okano

Nuclear resonant scattering study of quasicrystal $i\text{-AlCuFe}$ K. Shibata

Preliminary Experiments of Surface and Interface in BL09XU S. Nakatani

Modulation of CTR Scattering under Bragg Condition W. Yashiro

A Feasibility Examination of Multiple-Energy X-ray Holography in S. Nakatani

Preliminary Study for the X-ray Standing Wave Analysis of the Electrode/Zirconia (solid state electrolyte) Interface A. Saito

High-pressure Mosbauer study of FeS with nuclear forward scattering of synchrotron radiation H. Kobayashi

Nuclear Resonant Diffraction in Nearly Perfect Synthetic Hematite Crystals Containing Various Contents of ^{57}Fe M. Ando

Study of vibrational dynamics in transition metal-metalloid, metallic glasses A. Gupta

Nuclear resonant scattering by the nuclei with high transition energy Y. Yoda

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Compression behavior of rhodochrosite, MnCO_3 T. Nagai

Structure of Chalcogens under High Pressure	K. Nagata
Structure of Ga ₂ Se ₃ and GaSe under High Pressure	M. Takumi
Structural Studies of Two-Dimensional Ferromagnets A ₂ CuF ₄ (A=K, Rb, Cs) at High Pressure and Low Temperature	M. Ishizuka
Angular-Dispersive Powder X-ray Diffraction from the High Pressure Phase of Fe ₂ O ₃	S. Morimoto
Structural Studies of NbI ₄ under High Pressure	H. Kawamura
Structural Phase Transition of Molecular Solid under High Pressure	H. Kawamura
Amorphization from the High-Pressure Phase in III-V Compounds	K. Tsuji
Density of Liquid Se under High Temperature and High Pressure	Y. Katayama
XAFS analysis of optical activation process of Er in Si:Er ₂ O ₃ thin film	M. Ishii
Crystal Structure Analyses of Solid Oxygen High-Pressure Phases and Research for Molecular Dissociation	Y. Akahama
Electron Density Distribution Analysis of Pressure-Induced s-d Transition of Cesium by MEM	Y. Ohishi
Characterization of the Al-rich phase(s) in the garnet-perovskite phase transformation	K. Fujino
A Sensitive XAFS study using tunable X-ray undulator	Y. Kuwahara
Structure Analysis of Tetrahedral-Molecular Crystal and Amorphous at High Pressure	N. Hamaya
High Pressure Phase transitions in Adamantane	V. Viswanathan
Investigation of pressure induced crystal-crystal phase transformations in α-AIPO ₄ prior to amorphization	S. M. Sharma
Development of Ultra-high Density Solid State Detector Array for Rapid and Sensitive XAFS	H. Oyanagi
Facility for temperature dependent XAFS at BL10XU	N. L. Saini
Development of Polarized XAFS Measurements for Small Single Crystals	C. Lee
Development of control software for fluorescence XAFS measurement	H. Nagamori

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In situ SXS Study of Electrodeposition Process on Electrode	K. Uosaki
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Study on the Magnetism of Gd/Fe and Y/Fe amorphous multilayers via MCD	Y. Fujiwara
MCD Spectrum at Mn L _{2,3} -Edges in Ferromagnetic Mn Compounds	H. Maruyama
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Tuning of 2-dimensional photoelectron spectrometer	H. Daimon
Soft X-ray magnetic circular dichroism of ferromagnetic perovskite Mn oxides	S. Imada
Tuning of 2-dimensional photoelectron spectrometer and SPEED	H. Daimon
High resolution, high energy, resonance photoemission spectroscopy of Kondo Ce compounds	S. Suga
Soft X-ray magnetic circular dichroism of transition metal and rare earth compounds	S. Suga
Magnetic Circular Dichroism (MCD) in Li doped NiO.	A. Banerjee
3d 4f Resonant Photoemission Spectroscopy of CeNi	R. Jung
Characterization of the chemically etched SiC(0001) surfaces by photoelectron spectroscopy	H. Sasaki
Anomalous MCD signal of paraparamagnetic CeFe ₄ P ₁₂	T. Miyahara
Photoelectron and Magnetic Circular Dichroism Spectra of DO ₃ -related (Fe _{1-x} V _x) ₃ Al Alloys	K. Soda

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Thin film deposition using synchrotron radiation-induced CVD and ablation	A. Wakahara
Performance Test of the Resonant Auger Electron Spectrometer for Atoms and Molecules	I. H. Suzuki
Development of the Profile Monitors for Soft X-ray Beamline Using Diamond Detector	H. Aoyagi
Performance Test of a Reflectron-Type Mass Spectrometer for Soft-X-ray Photochemistry	H. Yoshida
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Total reflection X-ray fluorescence analysis of trace elements in bio-environmental samples	I. Nakai
Hard X-ray Magnetic Circular Dichroism of Laves Phase Compounds	M. Mizumaki
Magnetic hysteresis of XMCD effect in Gd/Fe sputtered multilayer	M. Takagaki
Effect of Bunch Mode of Storage Ring on X-ray Magnetic Diffraction Experiment	M. Ito
Development of A Monochromatic Beam Method of X-ray Magnetic Diffraction with A Phase Plate and A Linear Polarizer	M. Ito
Atomic image around Zn in GaAs:Zn using multiple energy X-ray holography	K. Hayashi
Analysis of thin films by X-ray scattering at grazing incidence	K. Sakurai
Feasibility tests of Johansson-type X-ray fluorescence spectrometer	K. Sakurai
Detection of trace metals by X-ray fluorescence using total reflection	K. Sakurai
Two dimensional elemental mapping and non-destructive characterization of the elements accumulated in biominerals and related environmental	I. Nakai
Study of Electronic States in 3d Transition-Metal Oxides by X-Ray Resonance Magnetic Scattering	K. Namikawa
XMCD Spectrum at Pt L _{2,3} -Edges Recreated by Helicity Modulation Technique	H. Maruyama
Multielectron Excitation in 3d -Transition Metal Compounds	H. Maruyama
Preliminary Test of X-Ray Emission Spectroscopy in Gd-Iron Garnet Single Crystal	H. Maruyama
Element Analysis by X-ray Fluorescence Imaging with Wolter Mirror	N. Watanabe
ATS Reflection of Magnetite (Fe ₃ O ₄)	J. Kokubun
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Wavelength dispersive x-ray fluorescence spectroscopy using monochromatized x-ray excitation	S. Hayakawa

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Crystal Structure Analysis of Human High-affinity Receptor for IgE.	H. Nishida
Structure determination of ribosomal protein L2 by multiplewavelength anomalous diffraction method	I. Tanaka
The structure determination of yeast 1-aminocyclopropane-1-carboxylic acid deaminase by multiple wavelength anomalous dispersion method	A. Nakagawa

X-ray Crystallographic Study of Ribulose 1,5-Bisphosphate Carboxylase/Oxygenase from a Red Alga, <i>Galdieria Partita</i> , with High Specificity Factor	Y. Kai
X-ray Data Collection from Heavy-atom derivative crystals of <i>Streptomyces antibioticus</i> Phospholipase D	A. Suzuki
Structure and function of photosystem I complexes	K. Satoh
X-Ray Crystallographic Study of Thermostable Aspartate Aminotransferase	K. Hirotsu
X-ray Crystallography of Bacteriorhodopsin	T. Kouyama
Cryogenic X-ray Crystallography of Light-Harvesting Complex of Photo System II (LHC-II)	T. Kouyama
Crystal Structure Analysis of Valyl-tRNA Synthetase in a complex with tRNA ^{Val}	O. Nureki
Crystal Structure Analysis of Valyl-tRNA Synthetase in a complex with tRNA ^{Val} (II)	O. Nureki
X-ray Crystallographic Studies on DNA Repair Enzymes	K. Fukuyama
The crystal structure of fully oxidized cytochrome c oxidase from bovine heart at 2.0 Å resolution	R. Nakashima
Crystallographic Study of G-CSF Receptor Complexed with G-CSF	M. Aritomi
Crystal Structure Analyses of Bovine Rhodopsin	T. Okada
Structure of G-protein couple Receptor (Rhodopsin)	M. Tsuda
Structure of Diol Dehydrase Containing Vitamin B ₁₂ Analogue	N. Shibata
SH2/SK3/SK2 composite domains of GAP120 complexed to a diphosphorylated peptide	E. F.Pai
Crystal structure analysis of Hmc	N. Shibata
Collection of X-ray diffraction data from the crystals of <i>Bacillus circulans</i> chitinase D using various X-ray optics	T. Matsumoto
X-ray Crystal Structure Analysis of <i>E.coli</i> Cysteine desulfurase 2	Y. Hata
Evaluation of Performance of the Bio-Crystallography Beamline by Means of Refinement of High-Resolution Crystal Structure	M. Fujihashi
Studies on Structure-Function Relationship of DNA Replication Control Proteins by Means of X-ray Crystallography	K. Miki
X-ray Structural Analyses for a Series of Mutant Human Lysozymes	K. Takano
Crystal Structure Analysis of Maltooligosyl Trehalose Synthase	M. Kobayashi
Structural basis for the control of antigen-antibody reaction	Y. Yamagata

Time-Resolved Crystal Structure Analysis of Photoreactive Nitrite Hydratase with Large-Angle Oscillation Technique	Y. Kawano
The flexibility of protein molecule in terms of the crystallography of DHFR mutants	K. Katayanagi
MIROAS Crystal Structure Analysis of Aleuria Aurantia Lectin with the Automatic Diffractometer	M. Kawamoto
SIRAS Phase Determination of Pressurized-Xe Protein Crystals with High-Energy X-rays	Y. Kawano
X-ray crystallography of calcium-dependent inhibitory factor	H. Sasaki
Crystal Structure Analysis of Water-Soluble Chlorophyll Protein from Raphanus Sativus var. hortensis	A. Uchida
X-ray Structure Analysis of Hydrogenase at High Resolution	H. Ogata
Crystallographic Study of an electron-transfer complex between Ferredoxin and Ferredoxin-NADP ⁺ reductase	G. Kurisu
A new hilium chamber and a long collimator with a four-way guard slit for collecting X-ray diffraction data from very low to high resolution	K. Hasegawa
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Crystal structure analysis of 20S Proteasome from bovine liver	M. Unno
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BL44B2

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Extracting Phase Information from Laue Diffraction Data	Q. Hao
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Analysis of the anisotropic displacement parameters of the catalytic domain of chitinase A1 from Bacillus circulans	T. Matsumoto
High-Resolution Crystal Structure of Intermediate Liganded State of $(\alpha^{\text{Fe(II)}})_2(\beta\text{Mg}^{\text{(II)}})_2$ Hybrid Hemoglobin	S. Park
X-ray crystallographic analysis of the evolution of vertebrate hemoglobins	K. Chong
High Resolution Data Collection and Preliminary Laue Diffraction Study of Adenylate Kinase from Sulfolobus solfataricus	H. Yamaguchi
Time Resolved Crystal Structure Analysis of Photoreactive Nitrite Hydratase with Laue Diffraction Technique	Y. Kawano
X-ray crystallographic study of bacteriorhodopsin's reaction intermediates by the time-resolved Laue method	T. Kouyama

BL45XU

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Test of the Small-angle Beamline for X-ray Diffraction Experiments on Skeltal Muscle	N. Yagi
X-ray Solution Scattering of Biological Supramolecules on an Undulator Radiation Source	Y. Inoko
Effect of molecular architechture on the Flory interaction parameter	K. Kimishima
Characterization about the Structure of Emulsion Particles by Using Small Angle X-ray Scattering(SAXS) Method	K. Saiga
Structural analysis during the photocycle of bacteriorhodopsin revealed by time resolved X-ray diffraction	T. Oka
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Speckle Without The Pinhole	A. Baron
Measurement of the emittance using crystal optics	Y. Kohmura
Evaluation of X-ray Bubble Lens & X-ray Hollow Plastic Ball Lens	Y. Kohmura
Refraction in imaging with parallel X-ray beam for medical use	K. Yamasaki
Feasibility Study on Microimaging with Phase Zone Plates at 6.5keV	K. Takemoto
Characterization of Zone Plate for Focusing X-ray	H. Miyaji

Contract Beamline

BL24XU

Development of High Resolution X-ray Imaging by the Refraction Contrast Method	Y. Tsusaka
Evaluation of Biocrystallography Experimental Hutch of Hyogo Beamline (BL24XU)	Y. Katsuya
Observations of Fatigue Cracks in Structural Materials by Refraction Contrast X-ray Imaging	T. Nakayama
Phase Contrast Imaging of Carbon Material	K. Izumi
X-ray diffraction topography of polished silicon surfaces under total reflection conditions	T. Katoh

Observations of pattern-induced strains by plain wave X-ray topography

K. Tani

Refraction imaging with parallel X-ray beam for medical use

K. Yamasaki