1. Atomic and Molecular Science ............................................................................................................. 5
   1-1 Breakdown of the One-Electron Orbital Picture for the Xe N-Shell
   1-2 Interatomic Coulombic Decay in Ne Dimers
   1-3 Interatomic Resonant Auger Effect in Fixed-Molecule Core-Level Photoemission

2. Chemical Science ................................................................................................................................... 9
   2-1 X-Ray Absorption Fine Structure (XAFS) Study of Rh-Cr Mixed-Oxide Cocatalyst Dispersed on Visible-Light-Driven (Ga,Zn)(N, 0) Photocatalysts
   2-2 Sulfur K-Edge Extended X-Ray Absorption Fine Structure (EXAFS) Analysis of Group 12 Metal(II) Complexes
   2-3 Mercury(II) Cysteine Complexes in Alkaline Aqueous Solution
   2-4 Dynamical Valence Fluctuations in [Pt(chn),][I] (chn: 1 R, 2R-Diaminocyclohexane) Observed Using X-Ray Diffuse Scattering, ESR and STM Techniques
   2-6 In-situ Time-Resolved Dispersive XAFS Study on a Pt/C Cathode Catalyst in a Fuel Cell

3. Surfaces and Interfaces ........................................................................................................................... 17
   3-1 Structure and Initial Oxidation of the SiC(0001) Surface
   3-2 A Resonant Photoemission Study of SrTiO3/LaTiO3 Interfaces
   3-3 Interface Dipole Formation at Polar/Non-Polar Heterointerfaces of Transition Metal Oxides

4. Electronic Structure of Condensed Matter .......................................................................................... 21
   4-1 Observation of Bulk Electronic States of YBa2Cu3O7 Using High-Resolution Angle-Resolved Photoemission Spectroscopy
   4-2 Anomalous Electronic Correlations in the Momentum Density of Al,Li

5. Nano and Materials Science ................................................................................................................ 24
   5-1 Orbital Ordering in a t2g Electron System: MnV2O4
   5-2 Orbital-Stripe Rotation and the Charge Polarized State in Double-Layered Manganite
   5-3 Wigner Crystallization in Molecular Conductor (Di-DCNQI),Ag
   5-4 A Single-Crystal to Single-Crystal Phase Transition under Hydrostatic Conditions Accompanied by a Large Deformation in Zn(OH)2
   5-5 Unusual Crystalization Behaviors from a Molecularly Thin Nanosheet Reactant

6. Environmental and Earth Science ......................................................................................................... 31
   6-1 Non-Destructive Observation of Air Hydrates by Phase-Contrast X-Ray Imaging
   6-2 Experimental Investigation on the Kinetics of the Pyroxene-Garnet Transformation Using an in-situ X-Ray Diffraction Method
   6-3 High-Pressure Phase of KAISiO3 as a Carrier of Potassium into the Earth’s Lower Mantle
   6-4 Speciation Study of Sulfate-Containing Size-Fractionated Aerosol Particles Using Sulfur K-Edge X-Ray Absorption Near-Edge Structure Spectroscopy (XANES)

7. Biological Science ................................................................................................................................ 36
   7-1 Structure and Function of Histone Chaperone CIA Complexed with Histones H3 and H4
   7-2 Molecular Basis for Guo-IRNA16-Dependent Amidotransferase of Bacterial GatCAB
   7-3 Complete Crystallographic Analysis of CCA-Adding Dynamics by the Class I CCA-Adding Enzyme
   7-4 Crystal Structure of the Complex between Mammalian Eap45 GLUE Domain and Ubiquitin
   7-5 Studies of the Recognition Mechanism of Small GTPase Rab11 by FIP3
   7-6 Structural and Chemical Basis of Protein Disulfide Bond Formation in E. Coli
   7-7 Structure of the Insulin Receptor Ectodomain Homodimer
   7-8 Dispositional and Conformational Changes of Myosin Crossbridges in Skeletal Muscle Contraction and Regulation Studied Using X-Ray Fiber Diffraction
   7-9 Low-Dose Hypersensitivity in Nucleus-Irradiated V79 Cells Studied Using a Synchrotron X-Ray Microbeam

8. Medical Imaging ................................................................................................................................... 49
   8-1 X-Ray Phase Imaging/Tomography Using Talbot Interferometry
   8-2 Elucidation of Microvascular Response Using Synchrotron Radiation Micro-Angiography
   8-3 X-Ray Phase Imaging of Biological Soft Tissue Using a Direct-Sensing X-Ray HARP Tube Camera

9. Applied Science .................................................................................................................................... 53
   9-1 Structural Analysis of Human Hair Fibers Using Scanning Microbeam SXS

10. Instrumentation and Methodology ..................................................................................................... 55
    10-1 Development of an Electron Electron Ion Coincidence Apparatus for Auger-Photoelectron Coincidence Spectroscopy (APECS) and Electron Ion Coincidence (EICO) Spectroscopy
    10-2 Analysis of Resonant-Diffuse X-Ray Scattering Spectra

11. Theory ................................................................................................................................................ 58
    11-1 A Dynamics Study of Ferroelectric Domains in Photo-Excited Three-Dimensional SrTiO3
    11-2 The Quantum Domain Structure of Electronic Excitations Found in Ionic-Neutral Transition Materials – An Ultra-Fast Photo-Induced Phase Transition