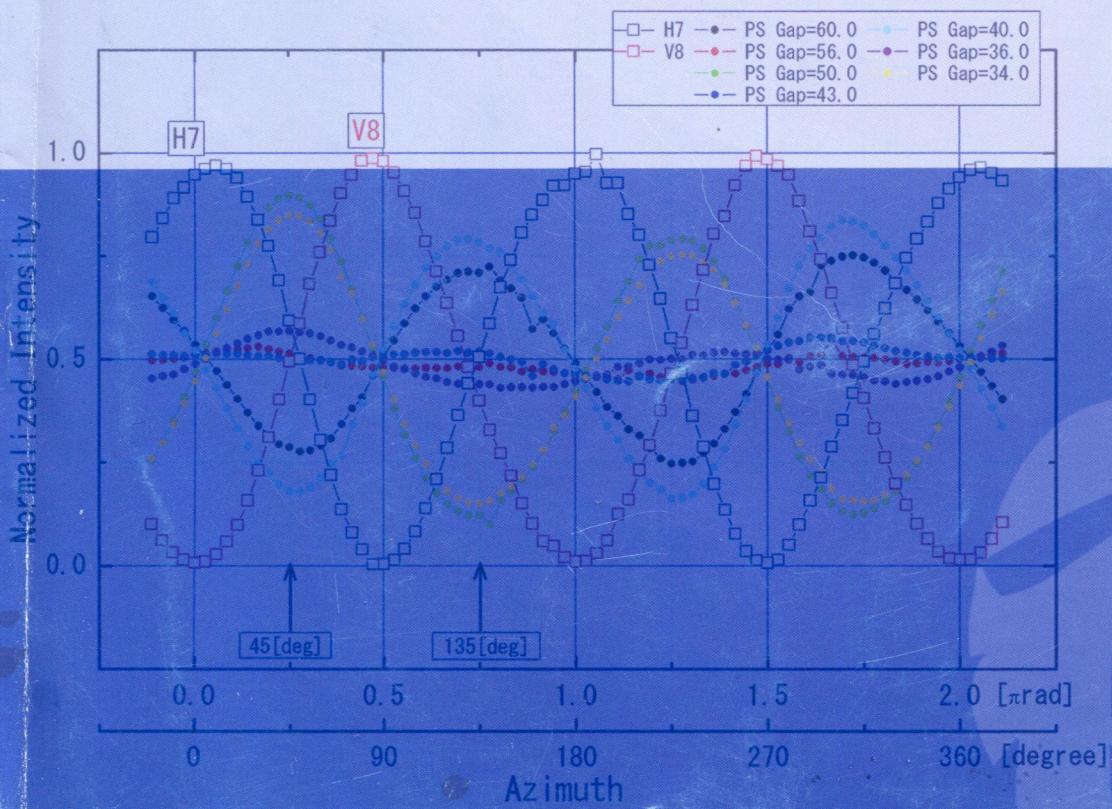


# ACTIVITY REPORT OF SYNCHROTRON RADIATION LAB.



**Activity Report of Synchrotron Radiation Laboratory 2010**

**Institute for Solid State Physics**

**The University of Tokyo**

**Nishiwanoha, Kashiwa, Chiba 277**

**Japan**

# TABLE OF CONTENTS

<b>Preface</b>	Akito Kakizaki
<b>1. Status of Beamlines at the Photon Factory, KEK</b>	<b>1</b>
<b>1.1 Beamline 18A</b>	<b>1</b>
<b>1.2 Beamline 19A</b>	<b>1</b>
<b>1.3 Beamline 19B</b>	<b>2</b>
<b>2. Status of Beamline BL07LSU at the SPring-8</b>	<b>4</b>
<b>3. Activities of Accelerator Group</b>	<b>6</b>
<b>3.1 Accelerator Research and Development</b>	<b>6</b>
<b>4. Workshops &amp; Meetings</b>	<b>7</b>
<b>5. Seminar</b>	<b>9</b>
<b>6. Activities</b>	<b>11</b>
<b>6.1 Synchrotron Radiation Experiments (PF)</b>	
<b>1) Characterizations of Core Level Electronic Structure and Interaction of Ln-M Cyano DMF Complex by Soft-X-ray Spectroscopy (in 2010)</b>	<b>12</b>
T. Akitsu	
<b>2) Electronic structure of BaPrO<sub>3</sub>-based oxides studied with soft X-ray absorption and emission spectroscopy</b>	<b>14</b>
S. Yamaguchi, T. Higuchi, Y. Oyama, S. Miyoshi, S. Mimuro, and T. Kikuchi	
<b>3) Spin- and angle-resolved photoemission study on Dirac-like surface states of ultrathin Bi<sub>2</sub>Se<sub>3</sub> films</b>	<b>16</b>
Y. Sakamoto, T. Hirahara, Y. Saisyu, Y. Takeichi, K. Yaji, I. Matsuda, A. Kakizaki, and S. Hasegawa	
<b>4) Structure and Spin-Polarized Electronic Properties of Ultrathin Fe Films on Pd(001)</b>	<b>18</b>
Y. Takeichi, A. Nishide, A. Harasawa, and A. Kakizaki	
<b>5) Influence of strain on thin film growth of Si on the Ge (111) surface</b>	<b>20</b>
I. Mochizuki, A. Tosaka, and Y. Shigeta	
<b>6) Electronic states of potassium intercalated picene thin film on Au substrate</b>	<b>22</b>
M. Hirai, H. Okazaki, Y. Yao, T. Doi, Y. Muraoka, and T. Yokoya	
<b>7) Angle- Resolved Photoemission Study of Verwey Transition of Fe<sub>3</sub>O<sub>4</sub>(001) Films</b>	<b>24</b>
F. -Y. Ran, Y. Tsunemaru, T. Hasegawa, Y. Takeichi, A. Harasawa, K. Yaji, S.-H. Kim, and A . Kakizaki	

<b>8) Spin-polarized metallic surface states on Tl/Si(111)-(1×1)</b>	<b>26</b>
Y. Yamamoto, B. MÜLLER, M. Otaka, B. Kim, Y. Takeichi, A. Harasawa, K. Yaji, and K. Sakamoto	
<b>9) Electronic structure of iron silicides grown on Si(001)</b>	<b>28</b>
S. Ohno, T. Momose, H. Toyoshima, S. Abe, K. Yaji, A. Harasawa, and A. Kakizaki	
<b>10) Study of the topological transition in Bi<sub>1-x</sub>Sb<sub>x</sub> as a function of Sb-doping</b>	<b>30</b>
F. Nakamura, Y. Kousa, A. A. Taskin, Y. Takeichi, A. Nishide, A. Kakizaki, M. D'Angelo, P. Lefevre, F. Bertran, A. Taleb-Ibrahimi, F. Komori, S. Kimura, H. Kondo, Y. Ando, and I. Matsuda	
<b>11) Thermal changes of structures and properties of π-backdonating metal complexes (in 2010)</b>	<b>32</b>
Takashiro Akitsu	
<b>12) Buckling of epitaxial silicene from Si 2p photoelectron diffraction experiments</b>	<b>34</b>
R. Friedlein, Y. Wang, A. Fleurence, and Y. Y.-Takamura	
<b>13) Electronic structure and auto-ionization process of ion-electron mixed-conductor</b>	<b>36</b>
S. Yamaguchi, T. Higuchi, Y. Oyama, S. Miyoshi, and M. Tamaru	
<b>14) SARPES study of the spin-polarized surface bands on Br/Ge(111)-(1×1)</b>	<b>38</b>
Y. Ohtsubo, A. Mori, N. Kawai, S. Kim, Y. Takeichi, K. Yaji, S. Hatta and T. Aruga	
<b>15) Electronic states of Ge(001)-(4×2)-Pt structure studied by angle-resolved photoelectron spectroscopy</b>	<b>40</b>
I. Mochizuki, Y. Fukaya, A. Kawasuso, and I. Matsuda	
<b>6.2 Synchrotron Radiation Experiments (SPring-8)</b>	
<b>16) Two-dimensional k-space band mapping with an angle-resolved-type time-of-flight analyzer</b>	<b>42</b>
M. Ogawa, S. Yamamoto, Y. Kousa, R. Yukawa, F. Nakamura, H. Kondo, Y. Tanaka, and I. Matsuda	
<b>17) Polarimeter for BL07LSU</b>	<b>44</b>
M. Fujisawa, and I. Matsuda	
<b>18) Polarizance Evaluation of Multilayer Analyzer</b>	<b>46</b>
M. Fujisawa, and I. Matsuda	
<b>19) Elliptical and 45degrees Linear Polarization Obtained from Two Linear Polarizations Perpendicularly Intersecting each other.</b>	<b>48</b>
M. Fujisawa, and I. Matsuda	

<b>20) A New Undulator for Polarization Control at SPring-8 BL07LSU: Present Status</b>	<b>50</b>
S. Yamamoto, T. Tanaka, H. Kitamura, Y. Senba, H. Ohashi, and I. Matsuda	
<b>21) Development of Three-Dimensional Scanning Photoelectron Microscope at SPring-8BL07LSU</b>	<b>52</b>
K. Horiba, Y. Nakamura, N. Nagamura, S. Toyoda, H. Kumigashira, M. Oshima, K. Amemiya, Y. Senba, and H. Ohashi	
<b>22) Ultrahigh resolution soft X-ray emission study at BL07LSU in SPring-8</b>	<b>54</b>
Y. Harada, M. Kobayashi, H. Niwa, Y. Senba, H. Ohashi, T. Tokushima, Y. Horikawa, S. Shin, and M. Oshima	
<b>23) The Study of the Heme Electronic Structure by Soft X-ray Emission Spectroscopy</b>	<b>56</b>
Y. Ohgo, M. Nakamura, H. Niwa, M. Kobayashi, Y. Harada, and M. Oshima	
<b>24) Development of High-energy-resolution Display-type Photoelectron Spectrometer for Microanalysis</b>	<b>58</b>
H. Daimon, H. Matsuda, L. Toth, K. Goto, M. Hashimoto, C. Sakai, F. Matsui, and T. Matsushita	
<b>25) Development of in-situ resonant soft X-ray Raman scattering on Mg-based hydrogen storage alloys</b>	<b>60</b>
D. Sekiba, Y. Watahiki, M. Kobayashi, H. Niwa, and Y. Harada	
<b>26) Resonant Inelastic Scattering Spectra of Ionic Liquid</b>	<b>62</b>
K. Kanai, D. Haratake, Y. Ouchi, H. Niwa, M. Kobayashi, Y. Harada and M. Oshima	
<b>27) Coherent soft x-ray imaging at BL07LSU</b>	<b>64</b>
K. Ono, T. Taniuchi, Y. Kotani, S. Harasse, and A. Momose	
<b>6.3. Accelerator Studies</b>	
<b>1) Cryomodule development for ERL main linac superconducting cavity</b>	<b>66</b>
H. Sakai, T. Furuya, K. Umemori, N. Nakamura, K. Shinoe, M. Sawamura, .and E. Cenni	
<b>2) Development of an Yb-Doped Fiber Laser System for an ERL Photocathode Gun</b>	<b>68</b>
I. Ito, R.Kasahara, N. Nakamura, D. Yoshitomi, and K. Torizuka	
<b>3) Beam Profile Measurement during Top-up Injection with a Pulsed Sextupole Magnet at the PF Ring</b>	<b>70</b>
H. Takaki, K. Harada, T. Honda, Y. Kobayashi, T. Miyajima, S. Nagahashi, N. Nakamura, T. Obina, M. Shimada, R. Takai, and A. Ueda	
<b>Staff</b>	<b>72</b>
<b>List of Publications</b>	<b>73</b>