

# **APPENDIX**

## ORGANIZATION

### *Staff*

#### Director

Katsumi	KIMURA	Professor
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#### Scientific Staff

##### Light Source

Toshio	KASUGA	Associate Professor (~ February '89)
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Goro	ISOYAMA	Associate Professor (October '89 ~)
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Hiroto	YONEHARA	Research Associate
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##### Beam Line

Makoto	WATANABE	Associate Professor
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Masao	KAMADA	Associate Professor
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Atsunari	HIRAYA	Research Associate
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Kazutoshi	FUKUI	Research Associate
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#### Technical Staff

Kusuo	SAKAI	Section Chief Engineer
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Osamu	MATSUDO	Unit Chief Engineer
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Toshio	KINOSHITA	Engineer
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Masami	HASUMOTO	Engineer
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Jun-ichiro	YAMAZAKI	Engineer
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Eiken	NAKAMURA	Engineer
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#### Secretary

Kayoko	MATSUDA	(~ March '89)
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Yasuno	NAGAYA	(April '89 ~)
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### *Guest Scientist*

Shun-ichi	NAOE	Adjunct Associate Professor from Kanazawa Univ. (~ March '89)
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Kazuhiko	SEKI	Adjunct Associate Professor from Hiroshima Univ. (April '89 ~)
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*Representative of Beam Lines*

BL2A	Kosuke	SHOBATAKE	Dept. Molecular Assemblies
BL2B2	Katsumi	KIMURA	Dept. Molecular Assemblies
BL3B	Inosuke	KOYANO	Dept. Molecular Assemblies
BL8B2	Hiroo	INOKUCHI	IMS
Others	Makoto	WATANABE	UVSOR

*Steering Committee* (April 1988 - March 1990)

Katsumi	KIMURA	IMS	Chairman
Toshio	KASUGA	IMS	(~ February '89)
Goro	ISOYAMA	IMS	(October '89 ~)
Ichiro	HANAZAKI	IMS	(July '89 ~)
Inosuke	KOYANO	IMS	
Norio	MORITA	IMS	
Tadayoshi	SAKATA	IMS	(~ May '89)
Kosuke	SHOBATAKE	IMS	
Makoto	WATANABE	IMS	
Shun-ichi	NAOE	IMS and Kanazawa Univ.	(~ March '89)
Kazuhiko	SEKI	IMS and Hiroshima Univ.	(April '89 ~)
Jun-ichi	CHIKAWA	Nat. Lab. High Energy Phys.	
Junji	FUJITA	Nat. Inst. Fusion Science	
Yoshihiko	HATANO	Tokyo Inst. Tech.	
Yoshio	NAKAI	Kyoto Univ.	
Tadashi	OKADA	Osaka Univ.	
Tadamasa	Shida	Kyoto Univ.	(April '89 ~)
Shigemasa	SUGA	Univ. of Tokyo	

**JOINT STUDIES** (fiscal year 1989)

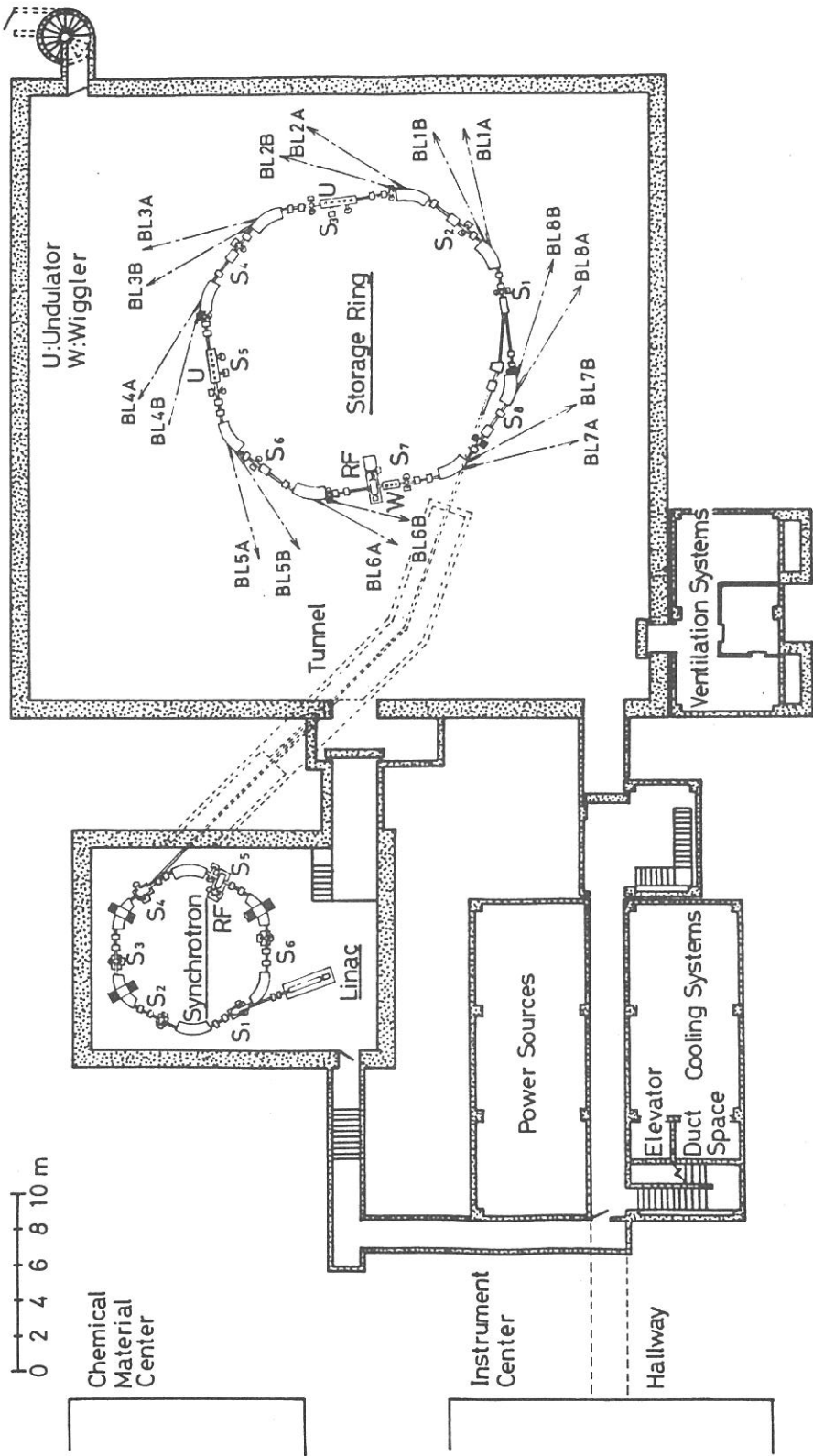
Special Project	: 2
Cooperative Research	: 18
Use of Facility	: 107
Users' Meeting	: 1
Workshop on Beam Dynamics and Free Electron Laser	: 1
Users' Time	: 38 Weeks

## LIST OF PUBLICATIONS (1989)

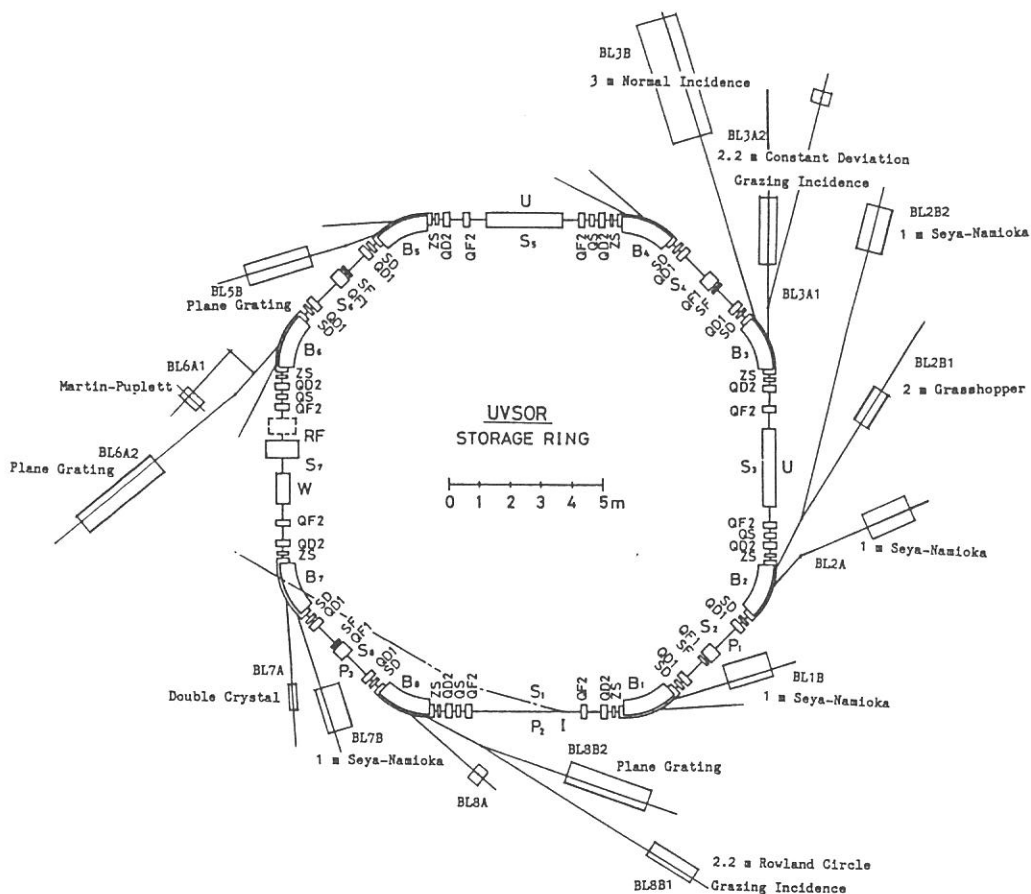
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T.Ohba and S.Ikawa  
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- 3)"Increase in Impurity in Single Bunch Mode of UVSOR Storage Ring"  
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- 5)"X-Ray Characteristics of Multilayer Reflectors"  
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- 7)"Optical Properties of CeTe and CeIn<sub>3</sub>"  
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- 10)"Mg K-XANES Studies in Magnesium Halides"  
S.Naoe, T.Murata and T.Matsukawa  
Physica B **158** (1989) 615.
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T.Ibuki, A.Hiraya and K.Shobatake  
J. Chem. Phys. **90** (1989) 6290.

- 12)"Band Structure of  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$  Studied by Angle-Resolved Photoemission"  
T.Takahashi, H.Matsuyama, H.Katayama-Yoshida, Y.Okabe, S.Hosoya, K.Seki,  
H.Fujimoto, M.Sato and H.Inokuchi  
Phys. Rev. B **39** (1989) 6636.
- 13)"Electronic and Geometric Structures of Oligothiophenes"  
U.Nagashima, H.Fujimoto, H.Inokuchi and K.Seki  
J. Mol. Struct. **197** (1989) 265.
- 14)"Synchrotron-Radiation Study of Weak Fluorescence from Neat Liquids of Simple Alkenes: Anomalous Excitation Spectra as Evidence for Wavelength-Dependent Photochemistry"  
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- 16)"Photoabsorption Spectrum and  $\text{CCl}_2$  ( $A^1B_1$ ) Radical Formation in the VUV Excitation of  $\text{C}_2\text{Cl}_6$ "  
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- 17)"EXAFS Study on the Dehydration Process in  $\text{Mg}(\text{OH})_2$ "  
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- 18)"Synchrotron Radiation Study on Small Binary Molecular Clusters. Ar-Water and  $\text{CO}_2$ -Water Systems"  
H.Shiromaru, H.Suzuki, H.Sato, S.Nagaoka and K.Kimura  
J. Phys. Chem. **93**(1989) 1832.
- 19)"Formation of  $\text{CN}^-$ -Centers on KCl from Gaseous  $\text{N}_2$  and  $\text{CO}_2$  with Undulator Light"  
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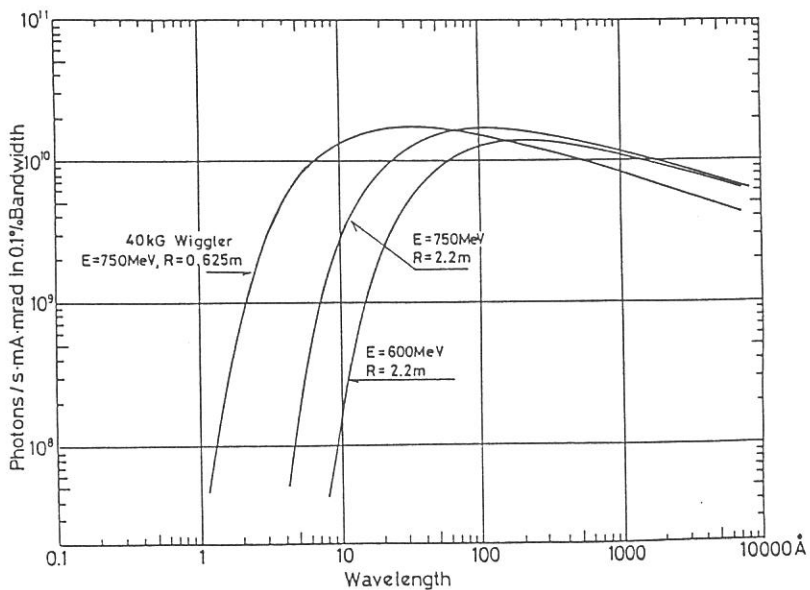
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and S.Mitani  
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- 24)"A Plane-Grating Monochromator for Radiometric Calibration"  
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- 25)"Constant Deviation Monochromator for the Range  $100 \text{ \AA} < \lambda < 1000 \text{ \AA}$ "  
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- 26)"Construction of a New Apparatus for Angle- and Energy-Resolved Measurements of  
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- 29)"Synchrotron Radiation Apparatus for Supersonic Jet Experiments"  
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- 30)"Photoacoustic Detector for Synchrotron-Radiation Research"  
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K.Fukui and M.Watanabe  
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- 33)"Photoemission Study of Single Crystal  $\text{Bi}_2\text{Sr}_2\text{CaCu}_2\text{O}_8$ "  
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Plan view of the basement of the UVSOR Facility.



The UVSOR storage ring and the beam lines.



Intensity distribution of the UVSOR radiation.



Table I Main Parameters of UVSOR

	Designed		Achieved	
<u>Linac</u>				
Energy	15	MeV		
Frequency	2.856	GHz		
<u>Synchrotron</u>				
Energy	600	MeV	600	MeV
Current	50	mA	32	mA
Circumference	26.6	m		
Periodicity	6			
Bending Radius	1.8	m		
Tune ( $Q_H, Q_V$ )	(2.25,	1.25)		
Harmonic Number	8			
Radio Frequency	90.1	MHz		
Repetition Rate	1-3	Hz	2.5	Hz
<u>Storage Ring</u>				
Energy	600	MeV	750	MeV
	(max. 750	MeV)		
Critical Wavelength	56.9	A		
Current				
Multi-bunch mode	500	mA	500	mA
Single-bunch mode			71	mA
Lifetime	1	hr	3	hr
	(500	mA)	(100	mA)
Circumference	53.2	m		
Periodicity	4			
Bending Radius	2.2	m		
Bending Field	0.91	T		
Tune ( $Q_H, Q_V$ )	(3.25,	2.75)		
Harmonic Number	16			
Radio Frequency	90.1	MHz		
RF Voltage	75	kV		
Radiation Damping Time				
Horizontal	45.4	ms		
Vertical	40.9	ms		
Longitudinal	19.5	ms		
Emittance				
Horizontal	$8\pi \times 10^{-8}$	m.rad*	$<16\pi \times 10^{-8}$	m.rad
Vertical	$8\pi \times 10^{-9}$	m.rad*		
Beam Size (at the Center of Bending Section)				
Horizontal ( $2\sigma_H$ )	0.64	mm*		
Vertical ( $2\sigma_V$ )	0.46	mm		
Bunch Length ( $2\sigma^V$ )	0.17	ns	0.4	ns

\*10% coupling is assumed.

Table II Beam Lines at UVSOR

Beam Line	Monochromator, Spectrometer	Wavelength Region	Acceptance Angle(mrad)		Experiment
			Horiz.	Vert.	
BL1B	1 m Seya-Namioka	6500-300 A	60	6	Gas & Solid
BL2A	1 m Seya-Namioka	4000-300 A	40	6	Gas
BL2B1	2 m Grasshopper	600-15 A	10	1.7	Gas & Solid
BL2B2	1 m Seya-Namioka	2000-300 A	20	6	Gas
BL3A1	None (Filter, Mirror)		(U) 0.3	0.3	Gas & Solid
BL3A2	2.2 m Constant Deviation Grazing Incidence	1000-100 A	10	4	Gas & Solid
			(U) 0.3	0.3	
BL3B	3 m Normal Incidence	4000-300 A	20	6	Gas
BL5B	Plane Grating	2000- 20 A	10	2.2	Calibration#
BL6A1	Martin-Pupplet	5 mm-50 $\mu$ m	80	60	Solid
BL6A2	Plane Grating	6500-80 A	10	6	Solid
BL7A	Double Crystal	15-8 A	2	0.3	Solid
		15-2 A	(W) 1	0.15	
BL7B	1 m Seya-Namioka	6500-300 A	40	8	Solid
BL8A	None (Filter)		25	8	Irradiation, User's Instr.
BL8B1	2.2 m Rowland Circle Grazing Incidence	440-20 A	10	2	Solid
BL8B2	Plane Grating	6500-80 A	10	6	Solid

# : Institute of Plasma Physics, Nagoya University. U : with an undulator  
W : with a wiggler.

## LOCATION

Ultraviolet Synchrotron Orbital Radiation (UVSOR) Facility, Institute for Molecular Science (IMS) is located at Okazaki. Okazaki (population 300,000) is 260 km southwest of Tokyo, and can be reached by train in about 3 hours from Tokyo via New Tokaido Line (Shinkansen) and Meitetsu Line.



### Address

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0564-52-6101 (UVSOR)

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