

# Annual Report 2004

## Vol.2 Main Data

### 1. Papers Published

- [Advanced Materials Laboratory](#)
- [Nanomaterials Laboratory](#)
- [Materials Engineering Laboratory](#)
- [Biomaterials Center](#)
- [Superconducting Materials Center](#)
- [Computational Materials Science Center](#)
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### 2. Implementation of patents

- [2.1 The Registered Patent \(Foreign Patent\)](#)
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### 3. International Cooperation

### 4. Public Relations

- [International Conference, Seminar](#)

### 5. Publications

### 6. Land Area and Building Area

## 1. Papers Published

&lt; Advanced Materials Laboratory &gt;

No.	Publications Name
1.	H. Toyosaki, T. Fukumura, Y. Yamada, K. Nakajima, T. Chikyo, T. Hasegawa, H. Koinuma, M. Kawasaki : Anomalous Hall effect governed by electron doping in a room-temperature transparent ferromagnetic semiconductor : <u>Nat. Mater.</u> , 3, 221-224(2004)
2.	K. Wada, T. Taniguchi, H. Kanda : Direct band gap properties and evidence for ultraviolet lasing of hexagonal boron nitride single crystal : <u>Nat. Mater.</u> , 3(6)404-409(2004)
3.	X. Wang, N. P. Padture, H. Tanaka : Contact-damage-resistant ceramic/single-wall carbon nanotubes and ceramic/graphite composites : <u>Nat. Mater.</u> , 3(8)539-544(2004)
4.	J. Hu, Y. Bando, Z. W. Liu, J. H. Zhan, D. Golberg, T. Sekiguchi : Synthesis of crystalline Silicon tubular nanostructures with ZnS nanowires as removable teplates : <u>Angew. Chem.-Int. Edit.</u> , 43(1)63-66(2004)
5.	Beissenhirtz MK, Scheller FW, Stocklein WFM, D. G. Kurth, Mohwald H, Lisdat F : Electroactive cytochrome c multilayers within a polyelectrolyte assembly : <u>Angew. Chem.-Int. Edit.</u> , 43(33)4357-4360(2004)
6.	M. Yamashita, D. Kawakami, S. Matsunaga, Y. Nakayama, M. Sasaki, S. Takaish, F. Iwahori, H. Miyasaka, K. Sugiura, Y. Wada, . Miyamae, H. Matsuzaki, H. Matsuzaki, H. Okamoto, H. Tanaka, K. Marumoto, S. Kuroda : [Pt(en)2][PtX2(en)2]3[MX5X3]2·12 H2O: Quasi-One-Dimensional Halogen-Bridged PtII-PtIV Mixed-Valence Compounds with Magnetic Counteranions : <u>Angew. Chem.-Int. Edit.</u> , 43, 4763-4767(2004)
7.	Duan HW, Wang DA, D. G. Kurth, Mohwald H : Directing self-assembly of nanoparticles at water/oil interfaces : <u>Angew. Chem.-Int. Edit.</u> , 43(42)5639-5642(2004)
8.	Y. B. Li, Y. Bando, D. Golberg : Indium-Assisted Growth of Aligned Ultra-Long Silica Nanotubes : <u>Adv. Mater.</u> , 16(1)37-40(2004)
9.	Y. B. Li, Y. Bando, D. Golberg : SiC-SiO2-C Coaxial Nanocables and Chains of Carbon Nanotube-SiC Heterojunctions : <u>Adv. Mater.</u> , 16(1)93-96(2004)
10.	J. Hu, Y. Bando, F. F. Xu, Y. B. Li, J. H. Zhan, Jiayan XU, D. Golberg : Growth and Field-Emission Properties of Crystalline, Thin-Walled Carbon Microtubes : <u>Adv. Mater.</u> , 16(2)153-156(2004)
11.	Y. Zhu, Y. Bando, L.-W. Yin : Design and Fabrication of BN-Sheathed ZnS Nanoarchitectures : <u>Adv. Mater.</u> , 16(4)331-334(2004)
12.	Y. Zhu, Y. Bando, X. Dongfeng, D. Golberg : Oriented assemblies of one-dimensional ZnS nanostructure : <u>Adv. Mater.</u> , 16(9-10)831-834(2004)
13.	T. Tanaka, K. Fukuda, Y. Ebina, K. Takada, T. Sasaki : Highly Organized Self-Assembled Monolayer and Multilayer Films of Titania Nanosheets : <u>Adv. Mater.</u> , 16(11)872-875(2004)
14.	Ma RZ, Y. Bando, L. Zhang, T. Sasaki : Layered MnO2 nanobelts: hydrothermal synthesis and electrochemical measurements : <u>Adv. Mater.</u> , 16(11)918-922(2004)
15.	L.-W. Yin, Y. Bando, Y.-C. Zhu, D. Golberg, M. S. Li : A Two-Stage Route to Coaxial Cubic-Aluminum-Nitride-Boron-Nitride Composite Nanotubes : <u>Adv. Mater.</u> , 16(11)929-933(2004)
16.	L. Wang, Y. Ebina, K. Takada, K. Kurashima, T. Sasaki : A new mesoporous manganese oxide pillared with double layers of alumina : <u>Adv. Mater.</u> , 16(16)1412-1416(2004)
17.	L.-W. Yin, Y. Bando, D. Golberg, M. S. Li : Growth of Single-Crystal Indium Nitride Nanotubes and Nanowires by a Controlled-Carbonitridation Reaction Route : <u>Adv. Mater.</u> , 16(20)1833-1838(2004)
18.	K. Takada, Y. Sakurai, E. Muromachi, F. Izumi, R. A. Dilanian, T. Sasaki : A new superconducting phase of sodium cobalt oxide : <u>Adv. Mater.</u> , 16(21)1901-1905(2004)
19.	Z. Liu, Y. Bando, M. Mitome, J. H. Zhan : Unusual freezing and melting of gallium encapsulated in carbon nanotubes : <u>Phys. Rev. Lett.</u> , 93(9)095504-1-095504-4(2004)
20.	Yanagisawa, H, Tanaka, T, Ishida, Y, Matsue, M, Rokuta, E, S. Otani, Oshima, C : Phonon dispersion curves of a BC3 honeycomb epitaxial sheet : <u>Phys. Rev. Lett.</u> , 93(17)177003-1-177003-4(2004)
21.	A. Yamamoto : Section method for projected structure of icosahedral quasicrystals and its application to electron-microscopy-image and surface analyses : <u>Phys. Rev. Lett.</u> , 93(19)195505-1-195505-4(2004)
22.	R. Souda : Glass transition and intermixing of amorphous water and methanol : <u>Phys. Rev. Lett.</u> , 93(23)235502-1-235502-4(2004)
23.	Q. Zhang, K. Ariga, A. Okabe, T. Aida : Condensable Amphiphile with Cleavable Tail as 'Lizard' Template for Sol-Gel Synthesis of Functionalized Mesoporous Silica : <u>J. Am. Chem. Soc.</u> , 126(4)988-989(2004)
24.	N. Sakai, Y. Ebina, K. Takada, T. Sasaki : Electronic Band Structure of Titania Semiconductor Nanosheets Revealed by Electrochemical and Photoelectrochemical Studies : <u>J. Am. Chem. Soc.</u> , 126, 5851-5858(2004)
25.	J. Yamanaka, M. Murai, Y. Iwayama, M. Yonese, K. Ito, T. Sawada : One-directional crystal growth in charged colloidal silica dispersions driven by diffusion of base : <u>J. Am. Chem. Soc.</u> , 126(23)7156-7157(2004)

26.	I. Ichinose, K. Kurashima, T. Kunitake : Spontaneous Formation of Cadmium Hydroxide Nanostrands in Water : <u>J. Am. Chem. Soc.</u> , 126(23)7162-7163(2004)
27.	Ma RZ, T. Sasaki, Y. Bando : Layer-by-layer assembled multilayer films of titanate nanotubes, Ag- or Au-loaded nanotubes, and nanotubes/nanosheets with polycations : <u>J. Am. Chem. Soc.</u> , 126(33)10382-10388(2004)
28.	T. Kanai, T. Sawada, J. Yamanaka, K. Kitamura : Equilibrium Characteristic at Ordered-Disordered Phase Boundary in Centrifuged Nonequilibrium Colloidal-Crystal System : <u>J. Am. Chem. Soc.</u> , 126(41)13210-13211(2004)
29.	S. Liu, D. Volkmer, D. G. Kurth : Smart polyoxometalate-based nitrogen monoxide sensors : <u>Anal. Chem.</u> , 76(15)4579-4582(2004)
30.	J. Hu, Y. Bando, Z. W. Liu, J. H. Zhan, D. Golberg : The First Template-Free Growth of Crystalline Silicon Microtubes : <u>Adv. Funct. Mater.</u> , 14(6)610-614(2004)
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34.	A. Kimoto, K. Masachika, J.-S. Cho, M. Higuchi, K. Yamamoto : Synthesis and electroluminescence properties of novel main chain poly(p-phenylenevinylene)s possessing pendant phenylazomethine dendrons as metal ligation sites : <u>Chem. Mat.</u> , 16, 5706-5712(2004)
35.	J. Hu, Y. Bando, Z. W. Liu, F. F. Xu, T. Sekiguchi, J. H. Zhan : Uniform Micro-Sized - and -Si <sub>3</sub> N <sub>4</sub> Thin Ribbons Grown by a High-Temperature Thermal-Decomposition/Nitridation Route : <u>Chem.-Eur. J.</u> , 10(2)554-558(2004)
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40.	L.-W. Yin, Y. Bando, Y.-C. Zhu, D. Golberg, M. S. Li : Synthesis of InN/InP core/sheath nanowires : <u>Appl. Phys. Lett.</u> , 84(9)1546-1548(2004)
41.	N. E. Yu, S. Kurimura, Y. Nomura, M. Nakamura, K. Kitamura, J. Sakuma, Y. Otani, A. Shiratori : Periodically poled near-stoichiometric lithium tantalate for optical parametric oscillation : <u>Appl. Phys. Lett.</u> , 84(10)1662-1664(2004)
42.	Z. Liu, P. M. Kelly, J. Drennan, P. Mora, H. Kanda : Formation of spinel from olivine : <u>Appl. Phys. Lett.</u> , 84(11)1856-1858(2004)
43.	M. Suzuki, H. Yoshida, N. Sakuma, T. Ono, T. Sakai, S. Koizumi : Electrical characterization of phosphorus-doped n-type homoepitaxial diamond layers by Schottky barrier diodes : <u>Appl. Phys. Lett.</u> , 84(13)2349-2351(2004)
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56.	H. Xin, Ma RZ, L. Wang, Y. Ebina, K. Takada, T. Sasaki : Photoluminescence Properties of Lamellar Aggregates of Titania Nanosheets Accommodating Rare Earth Ions : <u>Appl. Phys. Lett.</u> , 85(18)4187-4189(2004)
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65.	S. Komatsu, K. Kurashima, Y. Shimizu, Y. Moriyoshi, M. Shiratani, K. Okada : Condensation of sp <sup>3</sup> -bonded Boron Nitride through a Highly Nonequilibrium Fluid State : <u>J. Phys. Chem. B</u> , 108(1)205-211(2004)
66.	R. Souda : Interactions of water with pyridine and benzene studied by TOF-SIMS : <u>J. Phys. Chem. B</u> , 108(1)283-288 (2004)
67.	Ma RZ, Y. Bando, T. Sasaki : Directly Rolling Nanosheets into Nanotubes : <u>J. Phys. Chem. B</u> , 108(7)2115-2119(2004)
68.	L. Wang, Y. Ebina, K. Takada, T. Sasaki : Ultrathin Films and Hollow Shells with Pillared Architectures Fabricated via Layer-by-Layer Self-Assembly of Titania Nanosheets and Aluminium Keggin Ions : <u>J. Phys. Chem. B</u> , 108, 4283-4288 (2004)
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70.	S. Komatsu, A. Okudo, D. Kazami, D. Golberg, Y. Li, Y. Moriyoshi, M. Shiratani, K. Okada : Electron field emission from self-organized micro-emitters of sp <sup>3</sup> -bonded 5H boron nitride with very high current density at low electric field : <u>J. Phys. Chem. B</u> , 108(17)5182-5184(2004)
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73.	F. F. Xu, Y. Bando : Formation of Two-Dimensional Nanomaterials of Boron Carbides : <u>J. Phys. Chem. B</u> , 108(23) 7651-7655(2004)
74.	R. Xie, N. Hirosaki, M. Mitomo, Y. Yamamoto, T. Suehiro, K. Sakuma : Optical Properties of Eu <sup>2+</sup> in -SiAlON : <u>J. Phys. Chem. B</u> , 108, 12027-12031(2004)
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## 1. Papers Published

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27	S. Yasuda, H. Yoshida, T. Yamamoto, T. Sakuma : Improvement of High-temperature creep resistance in polycrystalline Al <sub>2</sub> O <sub>3</sub> by cation co-doping : <u>Mater. Trans.</u> , 45(7)2078-2082(2004)
28	H. Yoshida, H. Nagayama, A. Kuwabara, T. Sakuma : Criterion for High Temperature Failure and Grain Boundary Chemistry in Superplastic TZP : <u>Mater. Trans.</u> , 45(7)2106-2111(2004)
29	H. Nagayama, H. Yoshida, Y. Ikuhara, T. Sakuma : Effect of GeO <sub>2</sub> and NdO <sub>2</sub> co-doping on high-temperature ductility in TZP : <u>Mater. Trans.</u> , 45(8)2564-2568(2004)
30	K Nakatani, H. Nagayama, H. Yoshida, T Yamamoto, T Sakuma : GeO <sub>2</sub> -doping Dependence of High Temperature Superplastic Behavior in 3Y-TZP : <u>Mater. Trans.</u> , 45(8)2569-2572(2004)
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32	P. Naumov : Steady-state infrared evidence of the photoinduced aci-nitro tautomer of solid 2-(2',4'-dinitrobenzyl) pyridine : <u>Bulletin of the Chemists and Technologists of Macedonia</u> , 23(2)87-92(2004)



## 2. Implementation of Patents

## 2.1 The Registered Patent (Foreign Patent)

No.	Title of the invention	Registration country	Date of Patent	Patent number
1.	HAVEY WALL STEEL MATERIAL HAVING SUPERIOR WELDABILITY AND METHOD FOR PRODUCING THE SAME (Joint owner:corporation)	CHINA	H16.4.7	ZL00102663.1
2.	FINE FERRITE-BASED STRUCTURE STEEL AND PRODUCTION METHOD THEREOF	FRANCE	H16.4.14	903413
3.	FERRITIC HEAT-RESISTANT STEEL AND METHOD FOR PRODUCING IT	BELGIUM	H16.4.14	903421
4.	FINE FERRITE-BASED STRUCTURE STEEL AND PRODUCTION METHOD THEREOF	GERMANY	H16.4.14	698 23 126.0-08
5.	FERRITIC HEAT-RESISTANT STEEL AND METHOD FOR PRODUCING IT	GERMANY	H16.4.14	698 27 729.5-08
6.	PROCESS FOR THE PRODUCTION OF Nb <sub>3</sub> Al EXTRA-FINE MULTIFILAMENTARY SUPERCONDUCTING WIRE	GERMANY	H16.4.15	10117227
7.	METHOD FOR STABILIZING OXIDE-SEMICONDUCTOR INTERFACE BY USING GROUP 5 ELEMENT AND STABILIZED SEMICONDUCTOR	U.S.A	H16.4.20	6,723,164
8.	GATE, CMOS STRUCTURE, AND MOS STRUCTURE	TAIWAN	H16.5.7	194500
9.	NANOTUBE, NANO THERMOMETER AND METHOD FOR PRODUCING THE SAME	U.S.A	H16.5.18	6,737,378
10.	ALUMINA SUPERPLASTIC CERAMICS	FRANCE	H16.6.4	14802
11.	OPTICALLY FUNCTIONAL DEVICE,SINGLE CRYSTAL SUBSTRATE FOR THE DEVICE AND METHOD FOR ITS USE	U.S.A	H16.6.8	6,747,787
12.	ULTRA MICRO INDENTATION TESTING APPARATUS	U.S.A	H16.6.29	6755075
13.	NICKEL-BASED SINGLE CRYSTAL ALLOY AND A METHOD OF MANUFACTURING THE SAME	U.S.A	H16.6.29	6,755,921
14.	FINE HOLLOW POWDER,THIN FLAKY TITANIUM OXIDE POWDER OBTAINED BY PULVERIZATION OF THE FINE HOLLOW POWDER AND PROCESSES FOR PRODUCING THE SAME(Joint owner:corporation)	KOREA	H16.7.28	443451
15.	ULTRA-FINE TEXTURE STEEL AND METHOD FOR PRODUCING IT	TAIWAN	H16.8.3	199752
16.	OXYNITRIDE PHOSPHOR ACTIVATED BY A RARE EARTH ELEMENT,AND SIALON TYPE PHOSPHOR	U.S.A	H16.8.17	6,776,927
17.	HAVEY WALL STEEL MATERIAL HAVING SUPERIOR WELDABILITY AND METHOD FOR PRODUCING THE SAME (Joint owner:corporation)	FRANCE	H16.10.13	1031636
18.	HAVEY WALL STEEL MATERIAL HAVING SUPERIOR WELDABILITY AND METHOD FOR PRODUCING THE SAME (Joint owner:corporation)	ENGLAND	H16.10.13	1031636
19.	HAVEY WALL STEEL MATERIAL HAVING SUPERIOR WELDABILITY AND METHOD FOR PRODUCING THE SAME (Joint owner:corporation)	ITALY	H16.10.13	1031636
20.	HAVEY WALL STEEL MATERIAL HAVING SUPERIOR WELDABILITY AND METHOD FOR PRODUCING THE SAME (Joint owner:corporation)	BELGIUM	H16.10.13	1031636
21.	HAVEY WALL STEEL MATERIAL HAVING SUPERIOR WELDABILITY AND METHOD FOR PRODUCING THE SAME (Joint owner:corporation)	GERMANY	H16.10.13	600 14 726.6-08
22.	HAVEY WALL STEEL MATERIAL HAVING SUPERIOR WELDABILITY AND METHOD FOR PRODUCING THE SAME (Joint owner:corporation)	AUSTRALIA	H16.10.13	EPC:1031636 :E279543

23.	METHOD FOR TREATING PHOTOREFRACTIVE EFFECT OF AN OPTICAL DEVICE AND PHOTOREFRACTIVE EFFECT-SUPPRESSED OPTICAL FREQUENCY CONVERSION DEVICE	U.S.A	H16.11.9	6,814,800
24.	HIGH-MELTING SUPERALLOY AND METHOD OF PRODUCING THE SAME	ENGLAND	H16.12.1	1026269
25.	HIGH-MELTING SUPERALLOY AND METHOD OF PRODUCING THE SAME	FRANCE	H16.12.1	1026269
26.	HIGH-MELTING SUPERALLOY AND METHOD OF PRODUCING THE SAME	ITALY	H16.12.1	1026269
27.	HIGH-MELTING SUPERALLOY AND METHOD OF PRODUCING THE SAME	BELGIUM	H16.12.1	1026269
28.	HIGH-MELTING SUPERALLOY AND METHOD OF PRODUCING THE SAME	SWITZERLAND	H16.12.1	1026269
29.	HIGH-MELTING SUPERALLOY AND METHOD OF PRODUCING THE SAME	GERMANY	H16.12.1	600 16 292.3-08
30.	SHAPE MEMORY ALLOY	ENGLAND	H16.12.8	1123983
31.	SHAPE MEMORY ALLOY	FRANCE	H16.12.8	1123983
32.	SHAPE MEMORY ALLOY	GERMANY	H16.12.8	1123983
33.	SHAPE MEMORY ALLOY	CHINA	H16.12.15	ZL01116241.4
34.	TITANIA ULTRATHIN FILM AND METHOD FOR PRODUCING IT	U.S.A	H17.1.4	6,838,160
35.	METHOD OF FORMING HIGH TEMPERATURE SUPERCONDUCTING JOSEPHSON JUNCTION	U.S.A	H17.1.4	6,839,578
36.	NICKEL-BASE SINGLE-CRYSTAL SUPERALLOYS, METHOD OF MANUFACTURING SAME AND GAS TURBINE HIGH TEMPERATURE PARTS MADE THEREOF(Joint owner: corporation)	ENGLAND	H17.1.5	1184473
37.	NICKEL-BASE SINGLE-CRYSTAL SUPERALLOYS, METHOD OF MANUFACTURING SAME AND GAS TURBINE HIGH TEMPERATURE PARTS MADE THEREOF(Joint owner: corporation)	FRANCE	H17.1.5	1184473
38.	NICKEL-BASE SINGLE-CRYSTAL SUPERALLOYS, METHOD OF MANUFACTURING SAME AND GAS TURBINE HIGH TEMPERATURE PARTS MADE THEREOF(Joint owner: corporation)	SWITZERLAND	H17.1.5	1184473
39.	NICKEL-BASE SINGLE-CRYSTAL SUPERALLOYS, METHOD OF MANUFACTURING SAME AND GAS TURBINE HIGH TEMPERATURE PARTS MADE THEREOF(Joint owner: corporation)	GERMANY	H17.1.5	60108212.5-08
40.	NB3GA MULTIFILAMENTARY SUPERCONDUCTING WIRE AND PROCESS FOR PREPARING THE SAME	U.S.A	H17.1.18	6,845,254
41.	HIGH SENSITIVE MAGNETIC FIELD SENSOR	U.S.A	H17.1.25	6,847,546
42.	METHOD OF PROCESSING AND HEAT-TREATING NbC-ADDED Fe-Mn-Si-BASED SHAPE MEMORY ALLOY	U.S.A	H17.2.15	6,855,216
43.	COMPOSITE INTEGRATED CIRCUIT AND ITS FABRICATION METHOD (Joint owners: Tokyo Institute of Technology/corporation)	U.S.A	H17.2.15	6,855,972
44.	FERROELECTRIC MATERIAL, TWO-COLOR HOLOGRAPHIC RECORDING MEDIUM, AND WAVELENGTH SELECTION FILTER(Joint owner:corporation)	U.S.A	H17.2.15	
45.	THREE-DIMENSIONAL PHOTONIC CRYSTAL AND PROCESS FOR PRODUCTION THEREOF AS WELL AS PROBE USED THEREFOR(Joint owner: RIKEN)	U.S.A	H17.3.8	6,865,005
<b>TOTAL</b>				<b>45</b>

## 2. Implementation of Patents

## 2.2 Summary of the Licensing fee Income (2004 Fiscal Year)

No.	Abstract	Patent number	Remarks
1.	Process for Producing Fine Metal Particles	U.S.A. Patent 4376740(and 3 Patents)	
2.	Nickel-Based Single Crystal Alloy	Application No.09-316111(and 1 Patent)	
3.	X-ray Divergence Limiter	Patent No.1806535	
4.	High-Temperature Oxide Superconductor	Application No.07/293,465(and 6 Patents)	
Number of license: 4		Total 14	

### 3. International Cooperation

For NIMS, which intends to become one of the world's COE (centers of excellence) in materials research, international cooperation and exchanges with the world's leading research institutes are indispensable. Because NIMS is now an independent administrative institution (IAI), it can enter into cooperative arrangements with foreign institutes at its own discretion, and as a result, the number of concluded agreements of various types and number of non-Japanese employed in research at NIMS are both increasing rapidly. Measures for international cooperation implemented to date include general agreements on comprehensive research cooperation and memorandums of understanding (MOU) on individual research topics with top class research institutes, and the international joint graduate school programs with leading universities. In FY2004, NIMS concluded new comprehensive cooperation agreements with the Institute of Physics and the Institute of Metal Research, both members of the Chinese Academy of Sciences. Also, NIMS concluded 17 MOUs for individual research in FY2004 alone, for a total of 59 to date. Under alliances with international joint graduate schools, NIMS received 5 students from Charles University in the Czech Republic and 1 student from University of New South Wales in Australia and will begin receiving students from the Warsaw University of Technology in FY2005 under a similar agreement.

Individual Research Cooperation under MOU:

Distribution of MOUs by country.

Korea: 11, USA: 10, China, Germany: 6 each, UK: 4, France, India, Italy, South Africa, Sweden: 2 each, Australia, Holland, Mexico, Poland, Russia, Singapore, Slovakia, Spain, Switzerland, Taiwan, Thailand, Ukraine: 1 each

Sister Institutes:

Max Planck Institute for Metals Research (Germany), NIST-MSEL (USA), University of Cambridge (UK), ETHZ (Switzerland), CNRS (France), Institute of Physics (China), Institute of Metal Research (China)

International Joint Graduate Schools:

Charles University (Czech Rep.), Five Australian Universities (Sidney, Queensland New South Wales, Melbourne, Western Australia), Warsaw University of Technology (Poland)

NIMS researchers studying overseas: 5

NIMS researchers participating international conferences: 642 (Table 1)

NIMS researchers going on overseas surveys: 180 (Table 2)

Visiting foreign researchers: 167 (Tables 3 and 4).

**Table 1 Participants to International Conferences: Classified by Sponsorship**

Sponsorship	#
Subsidy for Operation	471
Funds by MEXT	15
Special Coordination Funds for Promoting Science and Technology	43
Funds by External Organization	70
Invited	6
JSPS	17
JST Core Research for Evolutional Science and Technology	11
Others	9
<b>Total Number</b>	<b>642</b>

**Table 2 Overseas Surveys: Classified by Sponsorship**

Sponsorship	#
Subsidy for Operation	96
Funds by MEXT	12
Special Coordination Funds for Promoting Science and Technology	30
Funds by External Organization	8
Invited	16
JSPS	13
JST Core Research for Evolutional Science and Technology	3
Others	2
<b>Total Number</b>	<b>180</b>



**Table 3 Foreign Researchers: Classified by Sponsorship**

Sponsorship	#
Subsidy for Operation	25
International Joint Graduate School	10
Funds by MEXT	11
Special Coordination Funds for Promoting Science and Technology	23
JSPS:Long	24
JSPS:Short	5
JSPS:Others	6
Summer Program	0
Winter Institute	2
REES Program	0
Funds by External Organization	56
Funds by JST	5
<b>Total Number</b>	<b>167</b>

**Table 4 Foreign Researchers: Classified by Citizenship**

Country	#	Country	#
Australia	3	Mexico	1
Bangladesh	1	Nepal	2
Bergium	2	P.R.China	37
Bosnia	1	Poland	5
Canada	3	Romania	1
Czech	7	Russia	1
Denmark	2	Singapore	1
England	12	Slovakia	4
France	8	Slovenia	1
Germany	13	Spain	1
Hangary	2	Sweden	1
Holland	1	Swiss	1
India	10	Thai	2
Iran	2	U.S.A.	16
Italia	1	Ukraine	6
Korea	18	Yugoslavia	2
<b>Total Number</b>			<b>167</b>

## 4. Public Relations

## International Conference, Seminar

Title	Date	Place
MITS 2005 meeting	March 15-18, 2005	Toshi Center Hotel, Tokyo
The 10th International symposium on Advanced Physical Fields (APF-10)	March 8-10, 2005	NIMS Sengen Site
UK-JAPAN Nanotechnology Symposium -Physics, IT Device, and Bio	March 9, 2005	Toranomon Pastoral, Tokyo
The 3rd NIMS International Conference, Materials for Human Safety	March 3-4, 2005	EPOCHAL TSUKUBA, Tsukuba
JAPAN NANO 2005	February 21-22, 2005	Tokyo Big Sight,
International Symposium on nanotechnology in Environmental Protection and Pollution (ISNEPP2005)	January 12-14, 2005	Bangkok, Thailand
The 12th International Symposium on Advanced Materials (12th ISAM)	December 7-10, 2004	NIMS Namiki Site
Fourth Asian International Symposium on Biomaterials	November 16-18, 2004	EPOCHAL TUSKUBA International Congerss
Nanotechnology user support project WorkShop:"The development of nanotechnology by leading-edge electron microscopy"	November 10-11, 2004	TIME24 TimePlaza
EcoMaterial Symposium Eco-material and device integration - Future of materials research for sustainable society –	October 12, 2004	The University of Tokyo, Takeda Hall, Asano Campus,
8th Ultra-Steel Workshop	July 21-22, 2004	Tsukuba International Congress Center
International Photocatalyst Techno Fair 2004 (PTF2004)	July 6-8, 2004	Tokyo Big Sight, West Hall 3
30th Symposium of Superconductivity Science and Technology	June 21, 2004	National Museum of Emerging Science and Innovation
1st Tsukuba International Coating Symposium-New spray processes to challenge harsh environments-	May 17-18, 2004	NIMS Sengen Site

## 5. Publications

1. NIMS 2005 (Japanese, 1/year)
2. NIMS 2005 International (English, 1/year)
3. National Institute for Material Science: Structural Materials Datasheets (published as required)
  - (1) Creep Datasheet (English)
  - (2) Fatigue Datasheet (English)
  - (3) Corrosion Datasheet (English)
  - (4) Space Use Materials Strength Datasheet (English)
  - (5) Structural Materials Datasheet Materials (Japanese)
4. NIMS NOW (Japanese, published monthly)
5. NIMS NOW International (English, published monthly)
6. Pamphlet (Japanese/English bilingual, published as required)

## 6. Land Area and Building Area

## 1. Land Area

31-March-2004

Site	Land Area(m <sup>2</sup> )	Notes
<a href="#">Sengen Site</a>	149,839	
<a href="#">Namiki Site</a>	152,791	
<a href="#">Sakura Site</a>	44,031	
<a href="#">Meguro Site</a>	5,102	
Total	351,763	

## 2. Building Area

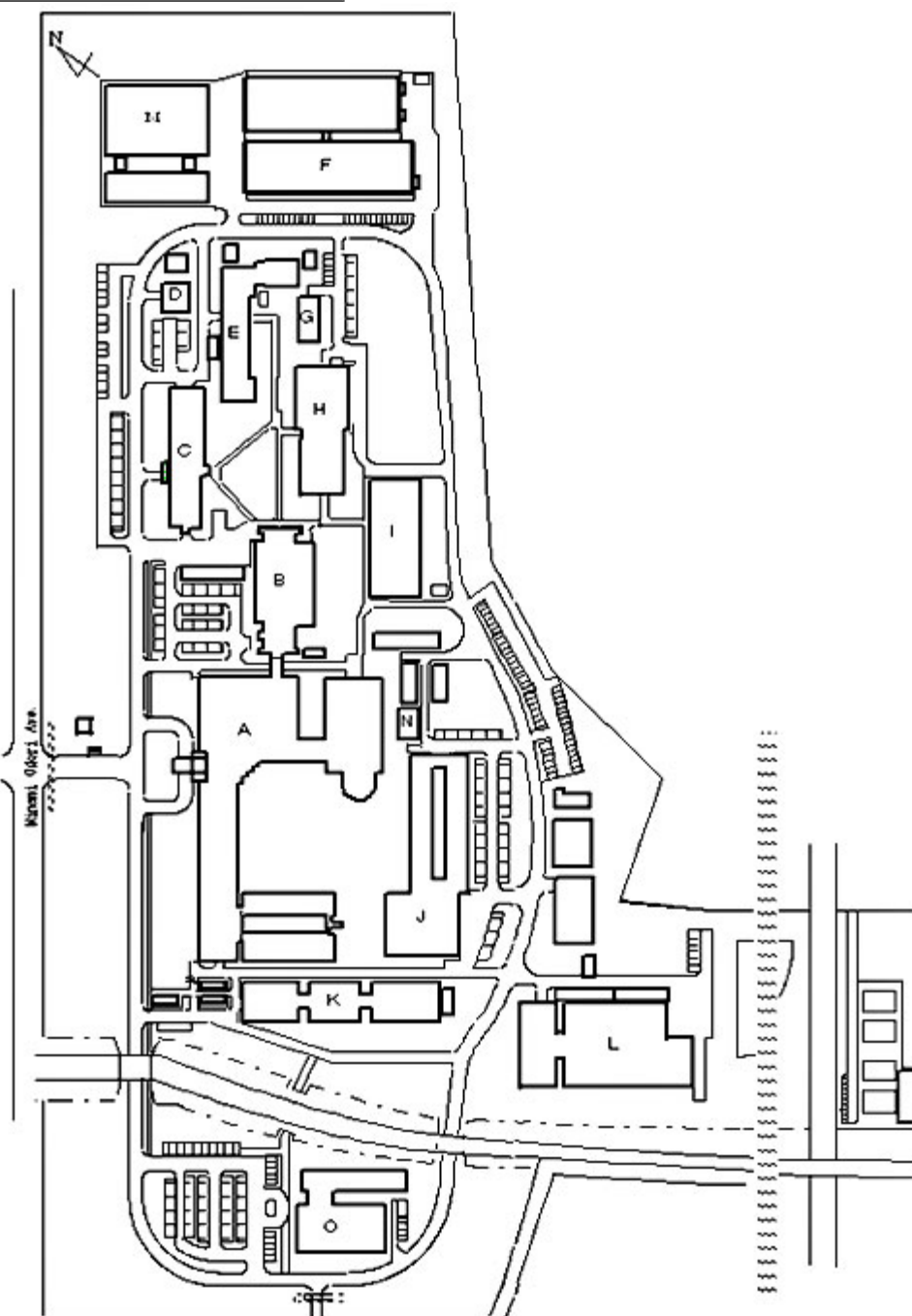
31-March-2004

Site	Building Area(m <sup>2</sup> )	Total Floor Space(m <sup>2</sup> )	Notes
<a href="#">Sengen Site</a>	29,422	65,287	
<a href="#">Namiki Site</a>	19,254	43,804	
<a href="#">Sakura Site</a>	9,488	17,722	
<a href="#">Meguro Site</a>	2,855	7,708	
Total	61,019	134,521	



Disposition  
Sengen Site

Land Area	149,839m <sup>2</sup>
Building Area	29,422m <sup>2</sup>
Total Floor Space	65,287m <sup>2</sup>

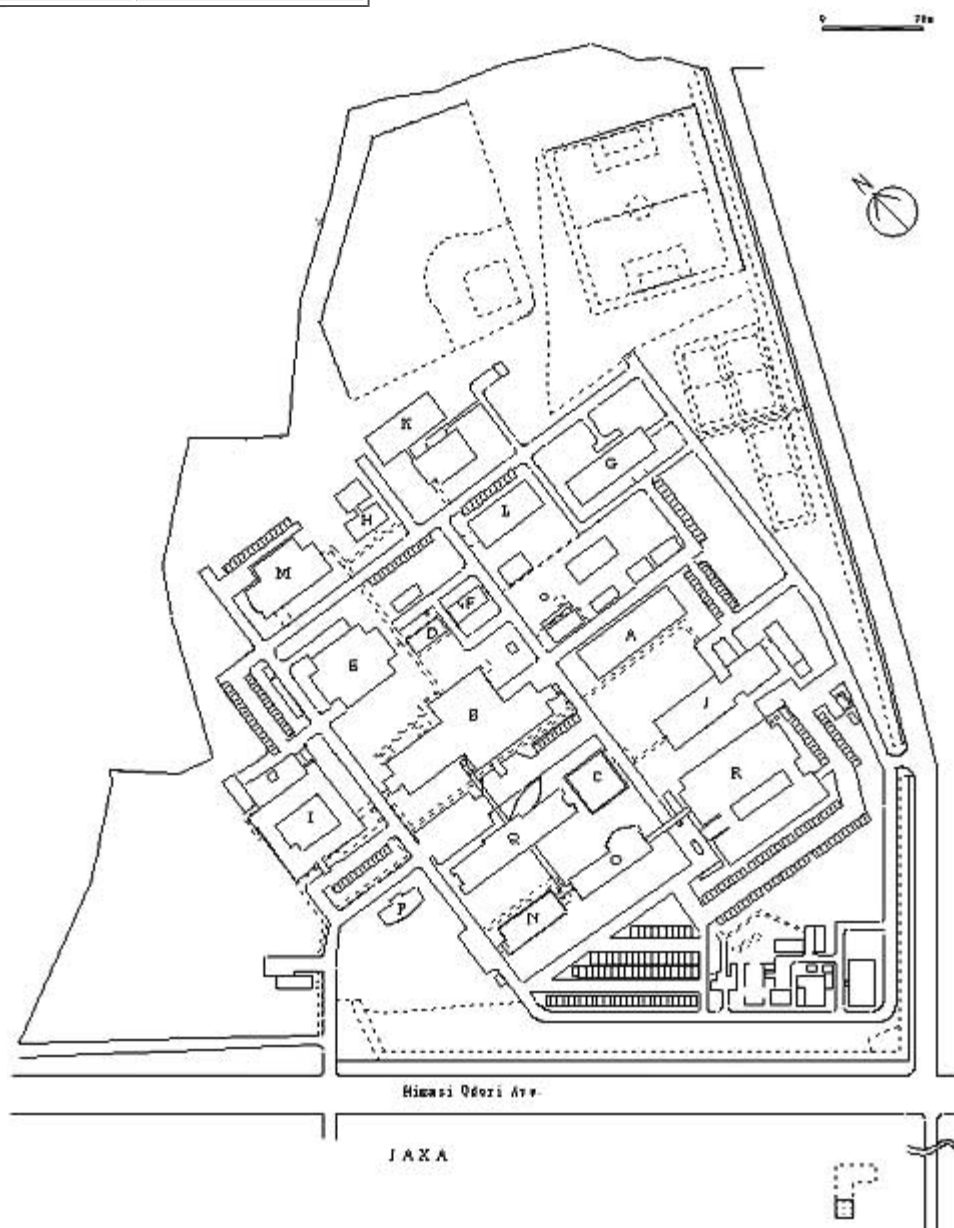


- |  |                                     |                                      |
|--|-------------------------------------|--------------------------------------|
| A Central Building                       | F Materials Preparation Factory     | K Physical Analysis Laboratories     |
| B Materials Evaluation Laboratories      | G Special Materials Laboratories    | L Mechanical Testing Laboratories    |
| C Superconducting Materials Laboratories | H Interface Science Laboratories    | M Structures Control Laboratories    |
| D Magnetic Properties Laboratories       | I Structural Materials Laboratories | N Welfare Building                   |
| E Environmental Effects Laboratories     | J Fine Processing Laboratories      | O Materials Reliability Laboratories |

31-March-2004

Disposition  
Namiki Site

Land Area	152,791m <sup>2</sup>
Building Area	19,254m <sup>2</sup>
Total Floor Space	43,804m <sup>2</sup>

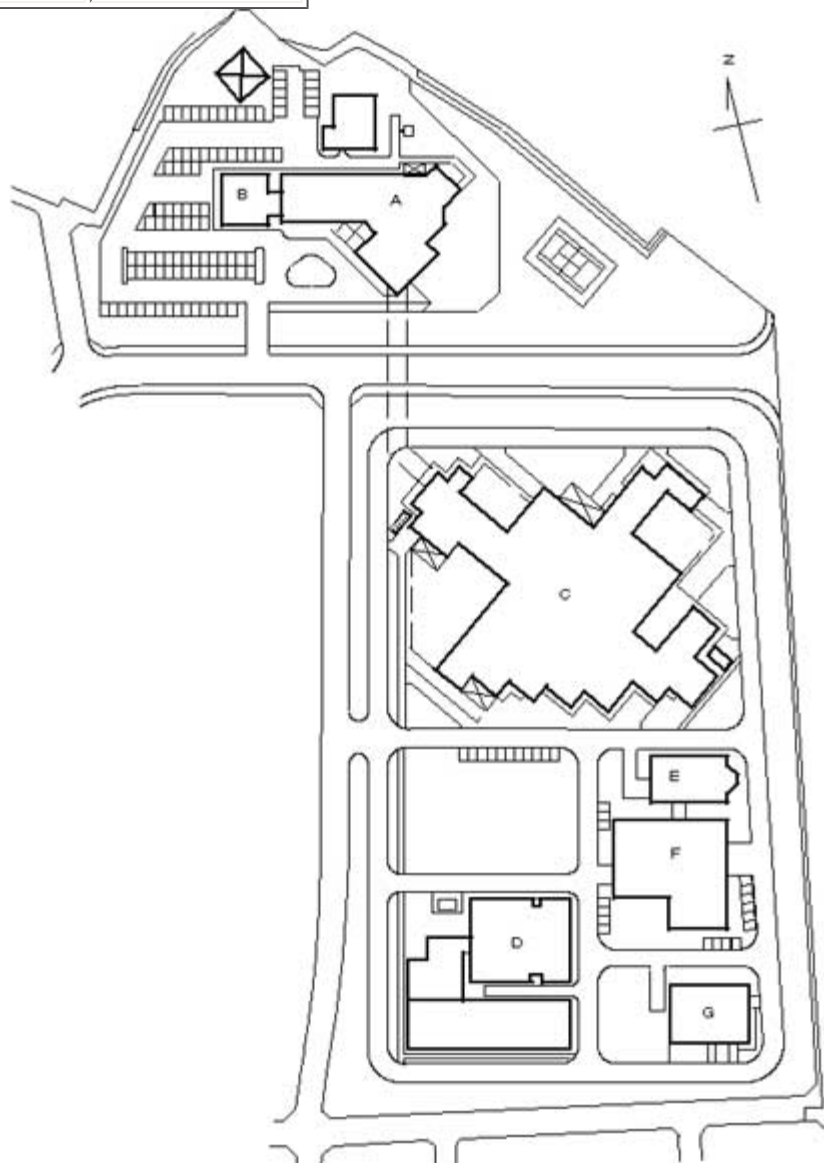


- |   |  |
|---|--|
| A High Pressure Laboratory                    | J Extreme Technology Laboratory                    |
| B Main Research Building                      | K Quake-Free Laboratory                            |
| C Welfare Building                            | L Superconducting Ceramics Laboratory              |
| D Helium Liquefier Facility                   | M Ion Beam Applications Laboratory                 |
| E High Temperature Synthesis Laboratory       | N Advanced Materials Laboratory                    |
| F Positron Annihilation Laboratory            | O Ultimate Analysis Laboratory                     |
| G Clean Laboratory                            | P Library  |
| H High Voltage Electron Microscope Laboratory | Q Collaborative Research Building                  |
| I Administration Building                     | R Nanomaterials and Biomaterials Research Building |

31-March-2004

Disposition  
Sakura Site

Land Area	44,031m <sup>2</sup>
Building Area	9,488m <sup>2</sup>
Total Floor Space	17,722m <sup>2</sup>

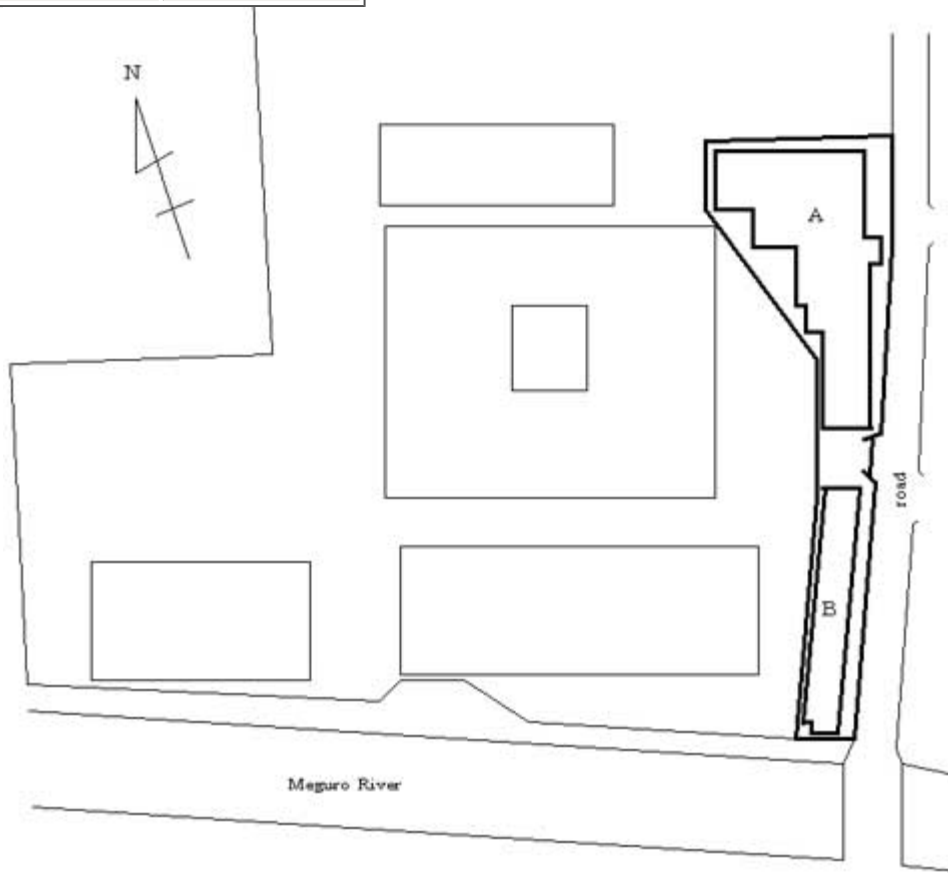


- A Central Office
- B Nanotechnology Collaborative Building
- C High Magnetic Field Laboratories
- D High Resolution Beam Laboratories
- E NMR Laboratory I
- F NMR Laboratory II
- G Waste Water Disposal Plant

31-March-2004

Disposition  
Meguro Site

Land Area	5,102m <sup>2</sup>
Building Area	2,855m <sup>2</sup>
Total Floor Space	7,708m <sup>2</sup>



A Creep Building

B Materials Database Building

31-March-2004