筑波研究学園都市と筑波大学
Tsukuba Science City and University of Tsukuba

2010.01.29
日中大学フェア＆フォーラム
B-2 大学とサイエンスパーク・ハイテクパーク(Ⅱ)

油田信一 (Prof. Shin’ichi YUTA)
筑波大学 産学リエゾン共同研究センター
Industrial Liaison and Collaborative Research Center,
University of Tsukuba
Tsukuba Science City

Research Institutes : 172
   Public Inst. and Univ. 24
   Private Company 148
   (No Factory !)

Venture Companies : 146

Researchers : 13,000
   Public Inst. and Univ. 8,500
   Private Company 4,500
   (Permanent employee only)
History

• 1963 Government Decided to Build Science City in Tsukuba
• 1969 Construction began
• 1979 Construction almost finished
• 1985 Tsukuba Science Exposition held
Statistics of Tsukuba Science City

- Population: ≈ 200,000
- Number of Institutes: 172
- Number of Researchers: ≈ 13,000
- Number of Foreign Researchers: ≈ 3,500
- Number of Registered Foreigners: ≈ 7,000
  - Best 5 nations: China, Korea, Brazil, Philippine, Thailand
- Number of Dr.: ≈ 5,500
- Accumulated Investment: ≈ ¥2.4 trillion
University of Tsukuba

- Founded in 1973

- Students 16,590 (as of May, 2008)
  - Incl. Postgraduate Students 6,379
- Faculty Members 1,651
- Administrative Staff 1,857

- Characteristics:
  - Overall university which covers a wide range of academic domains
  - Located in the center of Tsukuba Science City
  - Large number of students and researchers from other countries
Technology Transfer

• By licensing of patents and know-how to private companies,
• By assigning the Intellectual Properties to private ones,
• By creation of spin-off companies,
• Through conducting cooperative researches with companies or other institutes, and/or giving it away by publishing in papers and presentations at conferences.

Statistics of University-Industry Cooperation in FY 2008

• University Spin-off: 5 New Spin-offs (76 Accumulated Total)
• University-Industry Cooperation Research: 295 (746 million yen)
• Inventions: Application for Patent 118, Licensed 14
Missions of AIST: Contribution to a sustainable society.
industrial competitiveness.
local industrial development.
industrial technology policies.
## Revenue
- 99 billion Yen

## Number of Staffs
<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researchers</td>
<td>2,348</td>
</tr>
<tr>
<td>- Tenured researchers</td>
<td>2,036</td>
</tr>
<tr>
<td>- Fixed-term researchers</td>
<td>312</td>
</tr>
<tr>
<td>Administrative staff</td>
<td>690</td>
</tr>
<tr>
<td>Total number of employee</td>
<td>3,038</td>
</tr>
</tbody>
</table>

## Number of Visiting Researchers
<table>
<thead>
<tr>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Postdoctoral researchers</td>
<td>500</td>
</tr>
<tr>
<td>From private companies</td>
<td>1,100</td>
</tr>
<tr>
<td>From universities</td>
<td>2,000</td>
</tr>
<tr>
<td>From corporation etc</td>
<td>850</td>
</tr>
<tr>
<td>From overseas</td>
<td>750</td>
</tr>
</tbody>
</table>

## Facilities
- Lot area: \(2.5 \times 10^6\) m\(^2\)
- Total floor area: \(7.6 \times 10^5\) m\(^2\)
Research Field : Composition of Research Staff

**Life Science and Biotechnology : 18 %**
For the Realization of a Safe and High-quality Life

**Information Technology and Electronics : 17 %**
R&D Targeted Toward the Human Life Pervasive Network

**Nanotechnology, Materials and Manufacturing : 16 %**
Innovative and Cross-disciplinary Basic Technology

**Environment and Energy : 23 %**
For the Realization of a Sustainable Recycling-oriented Society

**Geological Survey and Applied Geosciences : 10 %**
Geoscientific Data Infrastructure, Disaster Prevention, Geo- and Marine Resources and Environment

**Metrology and Measurement Science : 16 %**
Development and Dissemination of the National Measurement Standards
National Institute for Materials Science

Revenue            22 billion Yen

Number of Staffs
Researcher                 420
Engineer                   56
Administration             92
Subtotal                   568
Fixed-term employee        821

Mission of NIMS
Fundamental research and generic / infrastructural technology research and development
Dissemination of research results and promotion of their applications
Shared use of NIMS facilities and equipment
Training of researchers and engineers
Centers:
Advanced Nano Characterization
Computational Materials Science
Quantum Dot Research
Quantum Beam
Nanotechnology Innovation
Organic Nanomaterials
Nano Ceramics
Advanced Electric Materials
Optronic Materials
Magnetic Materials
Biomaterials
Fuel Cell Materials
Superconducting Materials
Photocatalytic Materials
High Temperature Materials
Structural Materials
Advanced Photovoltaics
Materials Reliability
Hybrid Materials
Sensor Materials

Exploratory Nanotechnology R.L.
Exploratory Materials R.L. for
Information Tech.
Biotechnology
Energy and Environment
Reliability and Safety

Station
High Electron Microscopy
High Magnetic Field
Beam Line
Materials Database
Materials Manufacturing and Engineering
Materials Analysis
Inter-Institute Collaborations in Tsukuba Science City

- Research and organization collaboration agreements
  - Research and materials institutions collaboration agreement
  - Joint University (University of Tsukuba) and others

- Collaborative research projects
  - Multiple

- Organizations based on collaboration (with local governments)
  - Tsukuba University Town Association
  - Tsukuba Research Support Center
  - Tsukuba Medical Industry Consultation Committee
  - Tsukuba WAN
  - Tsukuba Science Academy
1. Environmentally-friendly development of bio-energy and biomaterial industry
2. Reducing CO₂ emission by biomass utilization
3. Encouraging sustainable primary industry, and creating new biomass-based industry

Biomass-Asia Initiative
Inter-Institute Collaboration in Tsukuba

- Abundant biomass resources (40% in the world)
- Current technology in Asian nations
- Cost advantage in collection & transport

AIST
Biomass-Asia Project Team

ASIA

Asian Nations
ASEAN Research Institutes

Biomass-Asian Workshop
Thailand: NSTDA, TISTR
Vietnam: VAST
Malaysia: SIRIM etc.

JAPAN

Agriculture & Forestry Research Institutes (JIRCAS, NARO, FFPRI)

Universities

Industries

Partnership with Asian nations is the key in environment and energy technology
Collaborative Activity in University of Tsukuba

- **連携大学院:**
  - Cooperative Graduate School

現在、26の機関と連携

<table>
<thead>
<tr>
<th>所在地別内訳</th>
<th>連携機関</th>
</tr>
</thead>
<tbody>
<tr>
<td>千葉県, 1-</td>
<td>茨城県(つくば以外), 1</td>
</tr>
<tr>
<td>神奈川県, 1-</td>
<td></td>
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<tr>
<td>埼玉県, 1-</td>
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<tr>
<td>東京都, 4-</td>
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<tr>
<th>連携機関</th>
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<tr>
<td>国 気象研究所</td>
</tr>
<tr>
<td>国 国立感染症研究所</td>
</tr>
<tr>
<td>国 国立国際医療センター研究所</td>
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<tr>
<td>独 日本原子力研究所東海、那珂事業所</td>
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<tr>
<td>独 建築研究所</td>
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<tr>
<td>独 国立環境研究所</td>
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<td>独 産業技術総合研究所</td>
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<td>独 食品総合研究所</td>
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<td>独 森林総合研究所</td>
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<td>独 土木研究所</td>
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<tr>
<td>独 農業・生物系特定産業技術研究機構</td>
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<tr>
<td>独 農業環境技術研究所</td>
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<tr>
<td>独 農業工学研究所</td>
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<tr>
<td>独 農業生物資源研究所</td>
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<tr>
<td>独 物質・材料研究機構</td>
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<tr>
<td>独 防災科学技術研究所</td>
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<tr>
<td>独 メディア教育開発センター</td>
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<td>独 理化学研究所</td>
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<tr>
<td>財 東京都医学研究機構</td>
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<tr>
<td>民 アステラス製薬(株)御幸が丘、東光台センター</td>
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<td>民 エーザイ(株)筑波研究所</td>
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<tr>
<td>民 (株)電通電通総研</td>
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<tr>
<td>民 東陶機器(株)総合研究所</td>
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<td>民 凸版印刷(株)</td>
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<td>民 日本電気(株)筑波研究所</td>
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<tr>
<td>民 日本電信電話(株)アクセスサービスシステム研究所</td>
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**Tsukuba Center Inc.** was established by investment of the Ibaraki Prefectural Government, the Development Bank of Japan, and seventy six private companies in Tsukuba Science City in 1988.

*TCI is promoting the establishment of new business* based on the cooperation of R&D organizations in Tsukuba Science City.

*TCI is providing services that benefit regional development* by supporting exchanges and cooperation of researchers from R&D organizations.

*TCI is acting as a base for supporting the establishment of venture businesses* and is promoting the cooperation between R&D organizations.

*TCI also provides information on R&D in Tsukuba.*

Current Issues on Tsukuba Science City in Japan

1. Increasing of inter-institute collaborations
   • but, still not enough number

2. No Factories in private company area:
   • Many research institutes but no factories,
     - Because of the environmental regulation in Tsukuba area.

3. Promotion of Venture Companies,
   • but, Shortage of venture funds, Engels for marketing, management and funding
   • Tsukuba Venture Fund (0.5 billion yen) alone.