Press Conference

President of JST

November 19, 2012

Development of Advanced Measurement and Analysis Technology

～Building the infrastructure for driving innovation in Japan～

Why promote R&D of Measurement and Analysis Technology?

Measurement and Analysis Technology is the Mother of Science

※ **Nobel Prizes related to measurement and analysis technology since 1970: 14 prizes**
[Awarded areas] Physics: 8, Chemistry: 4, Physiology or Medicine: 2

<Example: 2002 Nobel Prize in Chemistry awarded to Mr. Koichi Tanaka and Mr. John Fenn>

Development of soft desorption ionization methods for mass spectrometric analyses

- **Capable of analyzing macromolecules with a molecular mass of over one million**
- **Capable of non-destructive analysis of proteins, nucleic acids, etc.**

⇒ **Creation of new academic fields: Proteomics etc.**
⇒ **Potential fields of application: personalized medicine, early diagnosis, etc.**
⇒ **Creation of new manufacturing methods, etc.**

Measurement and Analysis Technology ≈ Driving force to promote innovation

Initiatives for Measurement and Analysis Technology in Japan

<Permanent measures>

– **Research Institute of Instrumentation Frontier, National Institute of Advanced Industrial Science and Technology (AIST)**
  ・R&D aimed at innovation, as well as safety and security in society
  ※ Responsible for industrial standards for measurement (ISO, IEC, JIS) in Japan

– **Advanced Nano Characterization Center, National Institute for Materials Science (NIMS)**
  ・R&D of world-leading technology, especially in nano-materials, surface and nano-analysis
  ・Playing a vital role as a R&D infrastructure by sharing outcomes and large-scale systems

– **Academic research mainly at universities, product development in industry, etc.**
  ・Including broad and diverse R&D related to measurement and analysis technology

<Focused measures>

– **Promoting the sharing of advanced measurement systems and facilities on a large scale**
  ・MEXT: “Nanotechnology Platform” in the Advanced Facilities Sharing Program

– **Competitive funds for R&D of advanced measurement equipment**
  ・“Development of Systems and Technology for Advanced Measurement and Analysis” program at JST

– **Support for solution-oriented R&D in the prioritized areas**
  ・Measurement technology among “technologies required for solving issues”
  e.g. JST (CREST, PRESTO), JSPS, NEDO, MHLW, Ministry of the Environment

Competitive funds

R&D of Measurement and Analysis Technology at JST

2004: Focused on the promotion of measurement technology R&D

CREST Research areas in the CREST program

- Novel Measuring and Analytical Technology Contributions to the Elucidation and Application of Materials (Research Supervisor: Michiyoshi Tanaka, Tohoku Univ.)
- Novel Measuring and Analytical Technology Contributions to the Elucidation and Application of Life Phenomena (Research Supervisor: Toshio Yanagida, Osaka Univ.)

さきがけ PRESTO Research areas in the PRESTO program

- Structure Function and Measurement Analysis
  (Research Supervisor: Shigeru Terabe, University of Hyogo)
- Life Phenomena and Measurement Analysis (from 2005)
  (Research Supervisor: Isao Morishima, Kyoto Univ.)

Solution-oriented basic research

"Development of Systems and Technology for Advanced Measurement and Analysis" Program【Newly funded】

※ A program focused on the development of measurement and analysis technology
※ Aiming at practical application of advanced technology through industry-academia collaboration

Continuously developing state-of-the-art equipment for measurement and analysis in Japan to keep R&D at the optimal level

Current R&D of Measurement and Analysis Technology at JST

Towards continuous development of measurement and analysis equipment in Japan

2012 CREST **A new research area launched**

Structural Life Science and Advanced Core Technologies for Innovative Life Science Research
(Research Supervisor: Keiji Tanaka, Director General, Tokyo Metropolitan Institute of Medical Science)

さきがけ PRESTO **A new research area launched**

Structural Life Science and Advanced Core Technologies for Innovative Life Science Research
(Research Supervisor: Soichi Wakatsuki, Deputy Director, Institute of Materials Structure Science)

"Development of Systems and Technology for Advanced Measurement and Analysis" Program

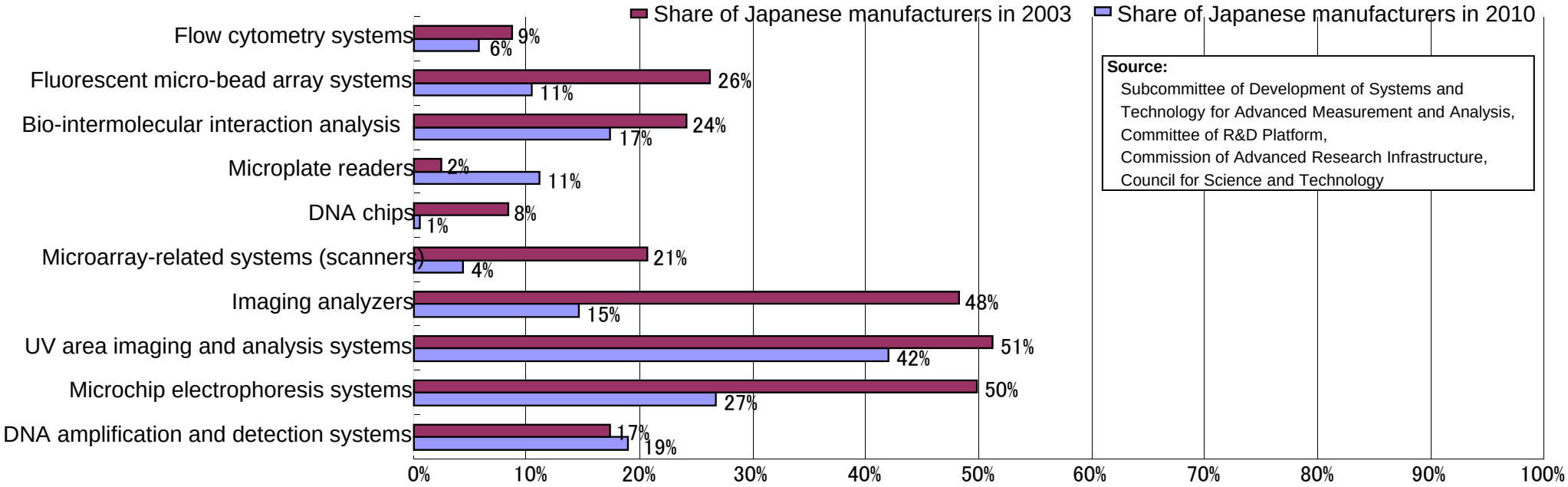
- ★ Selecting fields with greater social needs as "prioritized areas"
- ★ "Prioritized areas" in 2012: Radiation Measurements, Green Innovation
- ★ Practical use of the R&D outcomes of the Radiation Measurements area commenced

<Press release dated November 15, 2012>
Commercial development of cameras for imaging radioactive substances, utilizing the outcomes of R&D directed by Dr. Takahashi, JAXA

ASTROCAM 7000HS
Mitsubishi Heavy Industries, Ltd.
A commercial version will launch by March 2013

Future R&D of Measurement and Analysis Technology at JST

2003-2010: Market share of Japanese manufacturers in the life sciences field declined



Characteristics of current systems with low market share

- Generalized products that will not lead to state-of-the-art R&D
- Dominated by standardized overseas products with little room for Japanese products

"Development of Systems and Technology for Advanced Measurement and Analysis" Program

The new "prioritized area" in 2013: Life Innovation

⇒ Developing technology that generates new R&D and medical innovation