



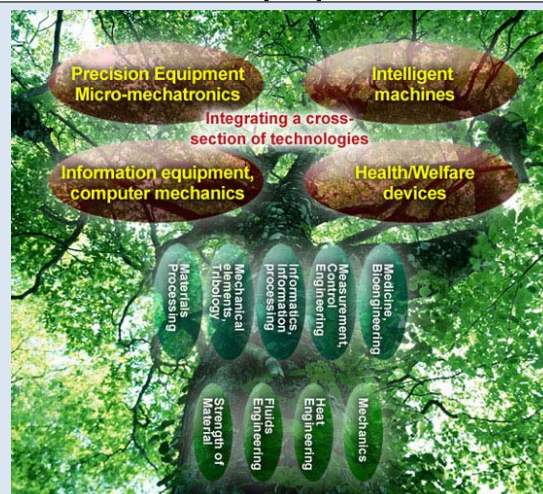
Recent Activities of JSME-IIP Division toward Advanced Information Society

Akihiro MATSUMOTO

IIP division chair 2015, Toyo Univ.

(presented at MIPE2015 WS on 2015-06-16)

IIP: Information, Intelligence and Precision Equipment division



23 year history

Defined in JSME-IIP website at
<http://www.jsme.or.jp/iip/index-e.html>

Missions of IIP (declared in 2007)

- Cross-sectional technology integration
- Industry/academia collaboration
- Contribution to society: transmission of information
- widen the cover area of IIP from
 - information equipment,
 - intelligent equipment,
 - precision equipmentto
 - Medical devices
 - Micro-mechatronics, nano-mechatronics, etc., but not limited to.

From IIP 15th anniversary forum in IIP2007

4

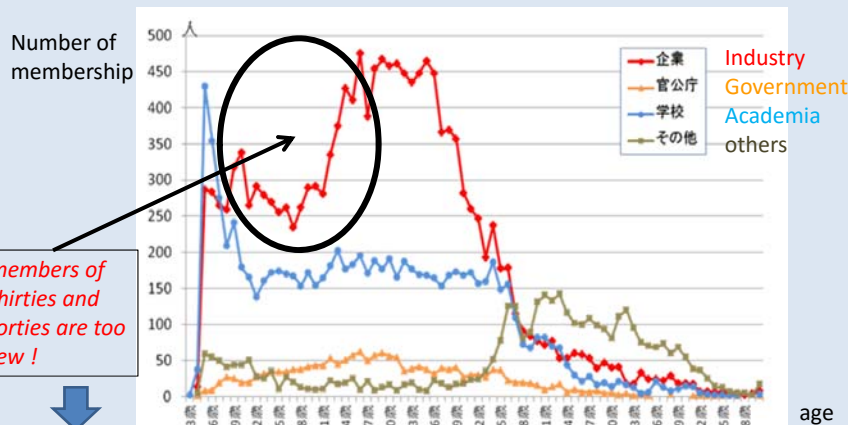
Similar societies in Japan

- Within JSME
 - Dynamics, Measurement & Control
 - Robotics & Mechatronics
 - Machine Design & Tribology
 - Bioengineering
 - Microengineering
 - Manufacturing & Machine Tool
 - Manufacturing Systems, etc.
- Outside
 - RSJ (Robotics society of Japan)
 - JSPE (Japan Society of Precision Engineering)
 - SICE (Society of Instrumentation Control Engineers), etc.

*Clarification of
different standpoint is
indispensable!*

Statistics – membership of JSME

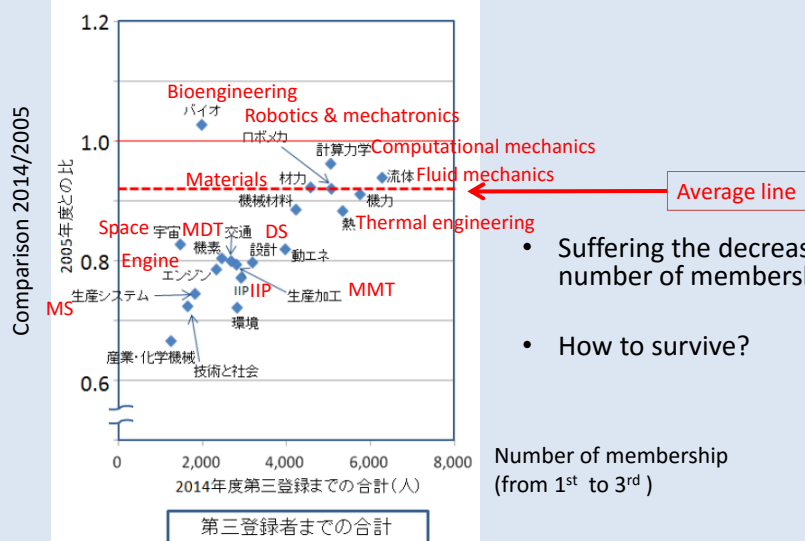
- Age problem (as of the end of fiscal year 2014)



Enough to keep science and engineering level for International competitiveness?

Source: statement of the 2015 JSME president : Dr. Azuhata

Members (year 2014 vs year 2005) of each division

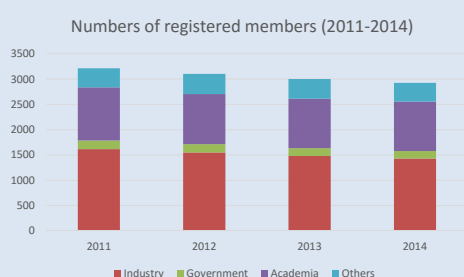


- Suffering the decrease of the number of membership
- How to survive?

Source: statement of the 2015 JSME president : Dr. Azuhata

Statistics – membership of IIP

Fiscal year	2009	2010	2011	2012	2013	2014
IIP registration (Total)	3334	3284	3214	3101	3001	2926
Industry			1616	1550	1479	1428
Government			171	164	155	149
Academia			1049	990	979	979
Others			378	397	388	370



From 1st to 3rd

Statistics – domestic meetings of IIP

	# of sessions	# of papers	# of Invited talks	# of participants	Industry/ Academia/ Others	Date	Venue
IIP2008	9	104	0	187	49/129/10	Mar. 17-18, 2008	Tokyo Institute of Technology
2009							
IIP2010	7	66	3	128	27/100/1	Mar. 16-17, 2010	Tokyo Denki University
IIP2011 cancelled	7	* 79	* 2	-	-	Mar. 22-23, 2011	(Tokyo Denki University)
2012							
IIP2013	10	73	1	151	51/96/4	Mar. 21-22, 2013	Toyo University
IIP2014	9	77	2	132	43/88/1	Mar. 18-19, 2014	Toyo University
2015							
IIP2016	?	120?	?	200?	?	?	?


- How to achieve the target? => bring one neighbor researcher/engineer/student with you. ;-)

News: Journals from JSME

Published by JSME: Reorganized in 2014

Bulletin of the JSME

Mechanical Engineering Reviews	Transactions of the JSME (in Japanese)	Mechanical Engineering Journal	Mechanical Engineering Letters (in preparation)	Accepts submission from July 1st, 2015
Journal of Fluid Science and Technology	Journal of Thermal Science and Technology	Journal of Biomechanical Science and Engineering	Journal of Advanced Mechanical Design, Systems, and Manufacturing	



「日本語」

Published by each division


Other journals [published outside]

- ROBOMECH Journal (2014-) [from Springer]
- International Journal of Engine Research (2000-) [from SAGE Publications]

English Journal by IIP and others since 2007

JAMDSM (Journal of Advanced Mechanical Design, Systems, and Manufacturing)

- Jointly published since 2007 by
 - MDT (Machine Design and Tribology),
 - DS (Design and Systems),
 - MMT (Manufacturing and Machine Tool),
 - MS (Manufacturing Systems) and
 - IIP
 divisions.
- In 2014 (vol.8), 6 numbers, 80 papers + 2 prefaces for special issues



Categories of the new journal: MECHANICAL ENGINEERING JOURNAL

Categories		
Category	abbreviation	Divisions, Professional Committees and Promotion Committee (Linking to Keyword)
Solid Mechanics and Materials Engineering	SMM	Materials & Mechanics Materials & Processing
Fluids Engineering	FE	Fluids Engineering
Thermal, Engine and Power Engineering	TEP	Thermal Engineering Engine Systems Power & Energy Systems
Dynamics & Control, Robotics & Mechatronics	DR	Dynamics, Measurement & Control Robotics & Mechatronics
Micro / Nano Science and Technology	MN	Micro-Nano Science & Technology
Computational Mechanics	CM	Computational Mechanics
Design, Systems, and Manufacturing	DSM	Machine Design & Tribology Design & Systems Manufacturing & Machine Tool Manufacturing Systems Information, Intelligence & Precision Equipment
Bio, Medical, Sports and Human Engineering	BMS	Bioengineering Sports engineering and Human Dynamics Biomedical Engineering and Technology

Oops !
No keywords from IIP
and MDT division !

A new trial since 2007

- Summer school : a program on engineering education jointly by industry and academia
 - To provide scientific stimuli to students, and
 - To bring mutual understandings between different universities



JSME Education prize 2010

Icebreaking: making straw towers



Panel discussion



Summer school 2014 at Toyo University: 64 participants from 4 universities

Road Map symposium (Mar. 20, 2015)

- RM from each area within IIP
 - Information equipment
 - Microsystems
 - Micro 3D printer
 - Intelligent Machines
 - Medicine-engineering collaboration
 - Rehabilitation robotics and human-assistance
 - Flexible media handling
- Presented in yesterday's forum in MIPE2015

Compiled by the strong leadership of Professor Saegusa.
Great thanks to him!



Photograph: courtesy of Prof. Y. Tanaka at NIT

What should we do for the promising future?

- Continuous exploration to find the next X equipment, next target area.
- Possible application areas in manufacturing side from the robotics and automation viewpoint; e.g., sensing and handling issues of flexible object
 - Car industry: e.g. wire harnesses
 - Semiconductor packaging (again)
 - Agriculture and food industry: food handling with inspection
 - Logistics industry: freight distribution
- Industry waits solutions based on the rigid academic background for the breakthrough.
- **Differentiation from other groups !**
- **Industry/academia collaboration !**



Wire harnesses: copied from Yazaki HP
<http://www.yazaki-na.com/en/product/wire-harness/>

I would like to ask all of you...

- To invite (force(?)) more *researchers, engineers* and *students* to IIP meetings
 - More participants (over 200!) in IIP2016 !
 - More participants in MIPE 2018 ! See you again in USA.
- To widen human network by attending/organizing activities of JSME/ASME/others.
- To publish more papers in JAMDSM journal as well as JSME/ASME journals.