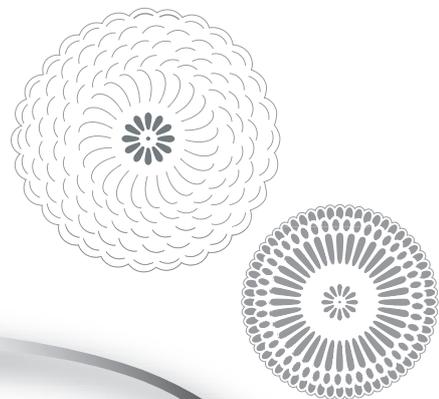


8 FEBRUARY 2007



LYON TOHOKU

リヨンー東北：将来に向けての提携

Une alliance pour le futur

ANNIVERSAIRE CONJOINT ECOLE CENTRALE DE LYON - UNIVERSITE DU TOHOKU - INSA DE LYON

ECOLE CENTRALE DE LYON 創立150周年、東北大学創立100周年、INSA-LYON 創立50周年合同記念日仏ジョイントフォーラム

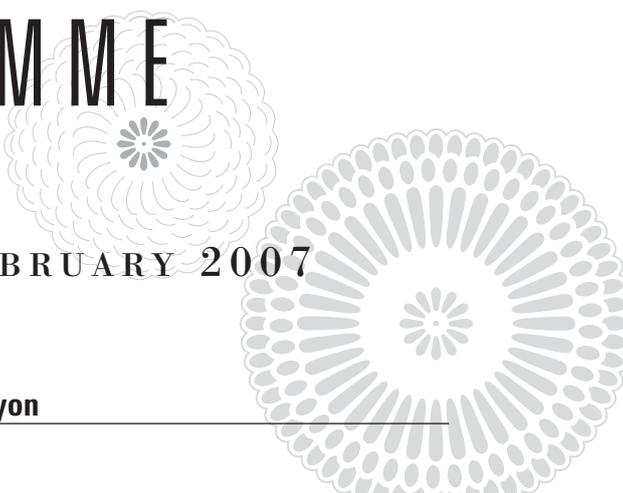
PROGRAMME

**Speakers' biographies
and abstracts**

Rhône-Alpes
Région



PROGRAMME



DAY 1 – THURSDAY, 8 FEBRUARY 2007

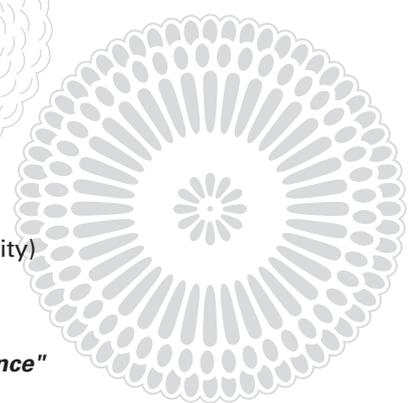
Morning Session Location: Hôtel de Ville de Lyon

- 10:00-10:30** **Opening remarks**
by Pierre Laréal (Deputy Mayor in charge of Universities and Research),
Alain Storck (Director of INSA de Lyon),
Patrick Bourgin (Director of Ecole Centrale de Lyon),
and Yutaka Imura (Japanese Ambassador to France)
- 10:30-12:10** **Keynote Speeches: "Science & society-oriented visions for 2020"**
- 10:30-11:00 Takashi Endo
(Executive Officer, Director, Technology Planning Department, East Japan
Railway Company)
"Challenge toward environmentally sustainable railway"
- 11:00-11:30 Claude Contet
(Vice President, Advanced Automotive Technologies Division, Renault)
**"The Technical collaboration within the Renault/Nissan alliance illustrated
through the example of the B-Platform project"**
- 11:35-12:10 Jacques Barrot (Vice President, European Commission)
"Scientific innovations in the transport sector: policy aspects"
- 12:10-12:45** **"Tohoku University outlook"**
- 12:10-12:20 Hitoshi Ohnishi (Vice President, Tohoku University)
"Tohoku University: today and the future"
- 12:20-12:45 Akihisa Inoue (President, Tohoku University)
"A road map to the future"
- 12:45-12:50 Greetings by Gérard Collomb, Senator, Mayor of Lyon
- 12:50-14:15 Buffet Lunch hosted by City of Lyon

Afternoon Session Location: Hôtel de Ville de Lyon

- 14:15-14:55** **"Japanese and French synergy"**
- 14:15-14:35 Jun'ichi Sato
(Managing Executive Officer, General Director of Corporate Research &
Development, IHI-Ishikawajima-Harima Heavy Industries Co.)
"Future trends of industrial research"
- 14:35-14:55 Jean-Jacques Gagnepain (Advisor of President, CNRS)
"Technology research and innovation"
- 

PROGRAMME



14:55-16:30 " Rhône-Alpes–Tohoku challenge"

14:55-15:15 Tetsuo Shoji (Executive Vice President, Tohoku University)
"Global strategy and collaboration for future"

15:15-15:35 Dany Escudié (Directrice de Recherche, INSA de Lyon)
"Research in the area of heat transfer and energy science"

15:35-15:50 Break

15:50-16:10 Shigeru Obayashi
(Professor, IFS -Institute of Fluid Science-, Tohoku University)
"Future direction of Japanese aeronautical science and technology"

16:10-16:30 Philippe Kapsa (Directeur de Recherche, Ecole Centrale de Lyon)
"Materials and tribology: A challenge for transportation in the future"

16:30-17:00 Concluding remarks

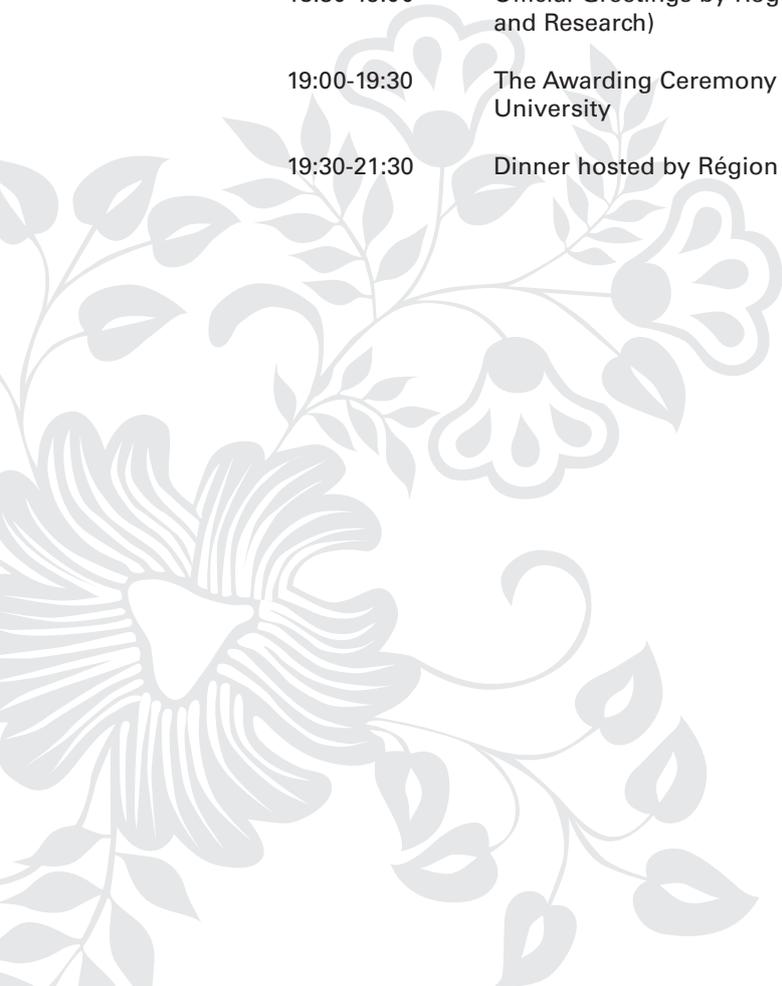
by Pierre Laréal (Deputy Mayor in charge of Universities and Research),
Akihiko Miyamoto (Director General of Economic Affairs Bureau, City of
Sendai) and Tetsuo Shoji (Executive Vice President, Tohoku University)

Evening Event Location: Conseil Régional Rhône-Alpes

18:30-19:00 Official Greetings by Roger Fougères (Vice President for higher Education
and Research)

19:00-19:30 The Awarding Ceremony of the Honda Kotaro Memorial Prize of Tohoku
University

19:30-21:30 Dinner hosted by Région Rhône-Alpes



8 FEBRUARY 2007



Name: **Takashi ENDO**
Institution: **East Japan Railway Company**
Position: **Executive Officer**
Director, Technology Planning Department
Director General, R&D Center of JR East Group

Brief Resume of past and present activities

Takashi Endo was graduated with a B.E. in mechanical engineering from the University of Tokyo in 1975, and received his M.S. from Imperial College of London University in 1980. He joined Japanese National Railways in 1975.

Since then, he has been involved in the technical management of railway business. He has worked for East Japan Railway Company since 1987, and was assigned as Director of the Advanced Railway System Development Center. He has served as Director of the Technology Planning Department and also as Director General of the R&D Center of the JR East Group since June 2004. He was also appointed as Executive Officer in June 2006, and is in charge of all of the R&D work of JR East.

Title of presentation

Challenge toward Environmentally Sustainable Railway

Abstract

Global warming caused by CO₂ has now become a major concern, and reduction of CO₂ emissions is critical for our future. In Japan, emissions from the transportation sector account for approximately 20% of overall emissions, and automobiles are responsible for about 86% of transportation sector emissions. To reduce emissions, the most effective way is to promote modal shifts from automobiles to railways. Two things, improvement of railway convenience and comfort to attract more passengers and increasing our environmental friendliness, will be important to achieve this change.

Therefore, JR East has begun two R&D projects committed to these tasks. Our next-generation Shinkansen train, FASTECH 360, will improve and balance the environmental aspect, speed, comfort, and reliability. Our Fuel Cell Hybrid Railcar has the potential to greatly improve our environmental friendliness in the future. Through these efforts, JR East is going to meet the challenge of achieving an Environmentally Sustainable Railway.

8 FEBRUARY 2007



Name: **Claude CONTET**
Institution: **Renault**
Position: **Vice President, in charge of Advanced Automotive Technologies Division**

Brief Resume of past and present activities

Graduated from the Ecole Centrale des Arts & Manufactures in 1976.

Oct. 1977 / April 1980 :	General Motors France, Engineer in charge of Brake Component Manufacturing Engineering activities.
May 1980 / April 1985 :	Renault, Research Division, Manager in charge of Comfort and Safety Research group.
May 1985 / June 1987:	FORME (Formation Recherche Maîtrise de l'Energie) Training Program in Japan, including a 8 months intensive Japanese language training at the Nihongo Institute in Tokyo, a one year stay as visiting researcher in the Advanced Ceramic Laboratory of Tokyo Institute of Technology and a 3 months in-house training in the R & D Centre of Toshiba Ceramics R & D Centre.
July 1987 / July 1989:	Renault, Manufacturing Engineering Division, Manager in charge of New Material Application Development projects.
Aug. 1989 / Aug. 1995:	Renault Tokyo Liaison Office, Director and Renault Representative for Japan and Korea.
Sept. 1995 / Dec. 1998:	Renault, Vehicle Engineering Division, General Manager in charge of Chassis System Manufacturing Engineering department
Jan. 1999 / June 1999	Auto Chassis International, Vice President in charge of Development & Sales.
July 1999 / Dec. 1999	Nissan, Tokyo Head Office, Executive Secretary to Executive Vice President in charge of Styling, Strategic & Product Planning and Program Management.
Jan. 2000 / Oct. 2005	Renault c/o Nissan Technical Center, Project Director in charge of the management of Renault Nissan Alliance B then C-Platform Project.
Nov. 2005 / Aug. 2006	Renault, c/o Nissan Technical Center, Deputy Vice President in charge of the Relationships with Nissan for Engineering and Quality Division.
From Sept. 2006	Renault Research, Advanced Studies & Material Division, Vice President in charge of the Advanced Automotive Technologies Division.

Title of presentation

The technical collaboration within the Renault / Nissan Alliance illustrated through the example of the B-Platform project.

Abstract

In March 1999, Renault and Nissan decided to join their forces and to create the Renault Nissan Alliance.

The Alliance is a unique business model based on three simple, yet profound and sacred principles – namely:

- Respect and preserve the brand, product and corporate identities of each member;
- Accept and maintain autonomous management structures; and
- Seek and develop synergies.

Synergies are related to various fields of activity. Based on taking advantage of both companies' complementarities and within the respect of each company identity, synergies development is supported by the Alliance organization, a unique light organization, dedicated to manage Alliance activities performed only for the sake of the performance of each company.

The B-Platform project, launched in 1999, was the first Alliance common project. It was a key milestone for the construction and the development of the Alliance as well as an important step to support the sustainable growth of both companies.

8 FEBRUARY 2007



Name: **Jacques BARROT**
Institution: **European Commission**
Position: **Vice-president of the European Commission**

Brief Resume of past and present activities

Jacques Barrot was born on 3 February 1937 at Yssingeaux in France. He is Vice-president of the European Commission in charge of Transports since November 2004. He was appointed as Member of the European Commission for Regional Policy from April to November 2004.

He was State Secretary for Housing from 1974 to 1978, Minister for Trade and Craft Industries from 1978 to 1979, Minister for Health and Social Security from 1979 to 1981 and Minister for Labour and Social Affairs from 1995 to 1997.

He was appointed Chairman of the Haute-Loire Departmental Council from 1976 to 2004.

Title of presentation

Scientific innovations in the transport sector: policy aspects

Abstract

The sector of transport in Europe is facing important challenges in terms of environment, energy, and adaptation to the enlargement of the EU and to globalisation.

In this regard, and in order to secure Europe's leadership in terms of innovation and research in transports, the role of EU policies and initiatives is essential.

In order to tackle the dependency of our transport system on oil, the European Commission is promoting green propulsion through different actions: the mid-term review of the 2001 White Paper focuses on energy efficiency, alternative fuels and intelligent transport systems. Within the Framework Programmes, such programmes as the European Technology Platforms and the Joint Technology Initiatives have also been created.

Furthermore, the European Commission has launched large-scale initiatives that combine industrial efforts with scientific excellence and policy making aspects: ERTMS, the EU rail signalling and automatic train speed control system; SESAR, the single European sky air traffic management research programme; and GALILEO, the EU global navigation satellite system.

8 FEBRUARY 2007



Name: **Hitoshi OHNISHI**
Institution: **Tohoku University**
Position: **Vice President**

Brief Resume of past and present activities

Born in Tokyo in 1949.

Graduated from Faculty of Law, University of Tokyo, and completed Ph.D course work at the Department of Political Science, University of California in Berkeley.

He was a research fellow of International Politics at University of Tokyo, an associate professor of International Politics at Tohoku University in Sendai, and a full professor of International Politics there since 1989. He was also a Senior Associate Member of St Antony's College, Oxford University from 1992 to 1994. He has served as Vice President of Tohoku University and Director of Tohoku University Library since November, 2002.

His research field is international relations, particularly the transformation of the nation-state system and disarmament. He used to be a Council Member of the Political Science Association of Japan, President of the Peace Studies Association of Japan, and is currently acting as a Council Member of the Pugwash Conferences of Science and World Affairs and Chair of Pugwash Japan.

Title of presentation

Tohoku University: today and the future

Abstract

Tohoku University was founded in 1907, as the third National University in the city of Sendai. Well known for its open and progressive policies, it was the first imperial University to admit women and foreign students through its gates and as a pioneer open university, it offers its facilities to the community for public lectures.

Today, the University is composed of 10 undergraduate schools, 17 graduate schools, 5 research institutes and many other educational and research centers and facilities which cover a wide range of fields from the humanities to social, natural and medical sciences. There are nearly 5,000 faculty and staff members and 18,000 students on five campuses; of the student body about 1,100 international students come from more than 70 different countries around the world.

Based on our history and tradition, we have established three fundamental policies; the University's mission to become a "Research-Intensive University" founded on the principle of, "University Open to the World and Community" and a goal of, "Development of Future Leaders". The staff and faculty members are also promoting further reforms along these ideas.

8 FEBRUARY 2007



Name: **Akihisa INOUE**
Institution: **Tohoku University**
Position: **President**
Member of Japan Academy

Brief Resume of past and present activities

Degrees

1970
1972
1975

B.A., Metallurgical Engineering, Himeji Institute of Technology
M.A., Materials Science and Engineering, Tohoku University
Ph.D., Materials Science and Engineering, Tohoku University

Experience

2005.11-2006.10
2000.4-2006.10
1990.5-2006.10
1985.5-1990.4
1976.4-1985

Vice President, Tohoku University
Director, Institute for Materials Research, Tohoku University
Professor, Institute for Materials Research, Tohoku University
Associate Professor, Institute for Materials Research, Tohoku University
Research Associate, Institute for Materials Research, Tohoku University

Honors & Awards

ISI Citation Laureate Award (2000), Japan Academy Prize (2002), Kelly Lecture (2003)

Research fields

Bulk Metallic Glasses, Nanocrystalline Materials, Quasicrystals

Title of presentation

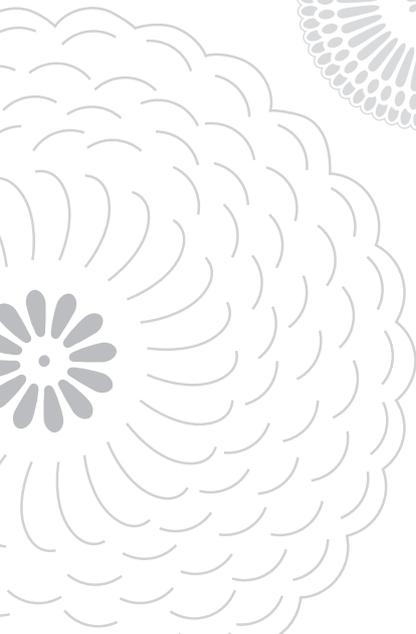
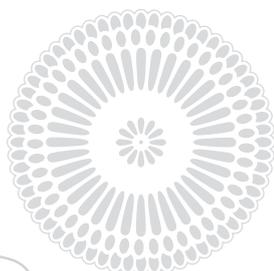
Tohoku University: a road map to the future

Abstract

Upon the appointment of President Inoue on the 6th of November, 2006, Tohoku University announced its new vision and strategies. With new organization on its centenary anniversary, the university takes its first step to compete amongst reputable educational institutions in the world, attracting many more students and researchers beyond its border. With a goal set as "a world-leading university ranked within 30th" it establishes 6 poles of strategies:

1. Education
2. Research
3. Social contribution
4. Campus environment
5. University management
6. Hospital management.

It is an honour for the university to organize the Joint Anniversary with École Centrale de Lyon and INSA-Lyon and share achievement and prospects generated through cooperation amongst the three institutions. Tohoku University having various close ties with France hopes to continue to be a reliable partner for international institutions and at the same time strives for excellent education and research.



8 FEBRUARY 2007



Name: **Jun'ichi SATO, Dr. Eng**
Institution: **Ishikawajima-Harima Heavy Industries Co., Ltd**
Position: **Board Director
Managing Executive Officer
General Director of Corporate Research and
Development**

Brief Resume of past and present activities

Date of Birth: 1st November, 1948

Technical Area:

Combustion Science and Technology, Energy engineering,
Gasturbines, Diesel engines, Boilers and Furnaces, Fire prevention

1976	Doctor Course, Graduate School, Dept. of Aeronautics, University of Tokyo
1976	Researcher, Research Institute, Corporate R&D, IHI
1999	General Manager of Administration Department, Corporate R&D
2002	Deputy Director, Corporate Business Development Division
2005	Executive Officer, Deputy Director of Corporate R&D
2006	Board Director and Managing Executive Officer, General Director of Corporate R&D
1997-1998	Guest Professor, University of Bremen, Germany
2000-present	Guest Professor, Tsinghua University, China
2004-2005	Guest Professor, Tohoku University, Japan

Title of presentation

Future Trends of Industrial Research

Abstract

The world economy is increasing in recent years due not only to the increase of the China and India economies but also to the new and innovative technologies.

It is very important for the industries how to harmonize the business strategy and R&D strategy, how to manage the research and development, how to use the research fund efficiently. In this presentation, "what is the industrial research" and "what are the needs of industrial research" will be described and then "how to improve the industrial research considering the cooperation between academics and companies" will be discussed. Dilemma between academic demand and industrial demand will be also discussed.

8 FEBRUARY 2007



Name: **Jean-Jacques GAGNEPAIN**

Institution: **CNRS**

Position: **Adviser of President of CNRS**

Brief Resume of past and present activities

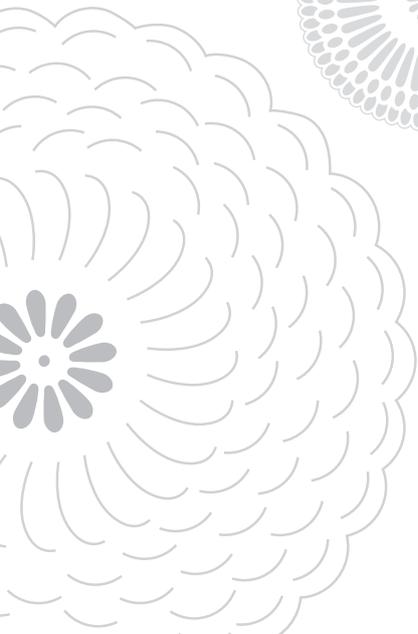
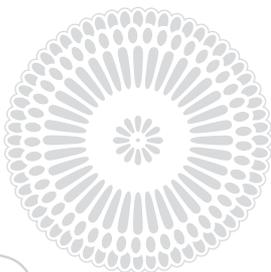
Physicist, director of engineering science department of CNRS (1992-2001), scientific adviser of General Delegate for weapons, ministry of defence(2001-2003), director of technology, ministry of higher education and research (2003-2006), adviser of president of CNRS.

Title of presentation

Technology research and innovation

Abstract

Brief review of the french situation in research and higher education, and role played by the engineering schools in innovation. Development of public-private partnership in research. Measures in favour of innovation, innovative companies start up, intellectual property. New act for research, agencies, Carnot institutes. Some comparisons with japan.



8 FEBRUARY 2007



Name: **Tetsuo SHOJI**
Institution: **Tohoku University**
Position: **Executive Vice President for Research and International affairs**
Director, Office of Cooperative Research and Development
Director, Center for Research Strategy and Support
Director, US Office
Director, Center for Mechanical Science Based on Nanotechnology

Brief Resume of past and present activities

Tetsuo Shoji received the B.E. Degree in Mechanical Engineering, School of Engineering in 1970 and the Doctoral Degree in Mechanical Engineering Graduate School of Engineering in 1975 at Tohoku University. He was appointed as Research associate in 1975 and promoted as an Associate Professor in 1983 and as a Full Professor in 1988 at Fracture Research Institute, Tohoku University.

After serving as a Vice-Dean for Research at School of Engineering, he is the Executive Vice President for Research and International Affairs in Tohoku University. He has been working in the research area of Environmentally Assisted Cracking including Stress Corrosion Cracking and Physics and Chemistry of Fracture and Failure Prevention, especially in the area of Aging Degradation and Management in Nuclear Power Plant. He has been working for many national and international committees on Nuclear Materials Aging and Structural Safety.

He received many national and international awards.

Title of presentation

Global Strategy and Collaboration for Future

Abstract

Globalisation in research and education is now essential for most of the universities in the world and University Network or Collaboration in institutional level has been well developed and are still going on. The collaboration among INSA-Lyon, ECL and Tohoku University is also one of the collaboration but more concrete programme is of concerns on the specific topics such as Energy, Transportation, Micro-Nano Systems and Nano Materials so on.

We need to foreseen the future societal needs and work together to respond them and to give solutions. Specially, the technology transfer from academia to industries must be done more international and also regional collaboration such Rhone-Alps and Tohoku-Sendai regional collaboration forming international intelligent cluster and industrial cluster in future. In particular, as far as energy concerns, nuclear energy is an essential main source with a benefit of reducing the emission of carbon dioxide where France and Japan recognise the Nuclear Energy as a primary source of energy now and for future. Global Technology Integration (GTI) provides more opportunity to develop safer and more economical basis for prolonged use of Nuclear Power Plants.

8 FEBRUARY 2007



Name: **Dany ESCUDIÉ**
Institution: **Centre de Thermique de Lyon CETHIL,
UMR CNRS-INSA-UCBL 5008
INSA de Lyon**
Position: **Directrice de Recherche CNRS**

Brief Resume of past and present activities

Directrice de Recherche
Centre National de la Recherche Scientifique CNRS
1981 Doctorat Combustion Laboratory CORIA - Rouen University
1983 CNRS Researcher – Fluid Mechanics Laboratory LMFA –
Ecole Centrale de Lyon
2003 Director of the Heat Transfer Laboratory CETHIL – INSA de
Lyon

Research Themes

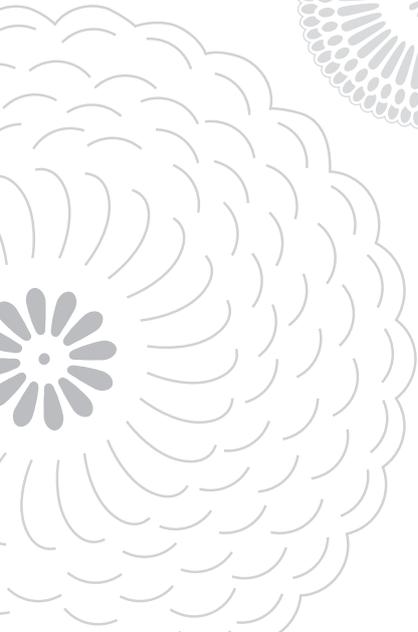
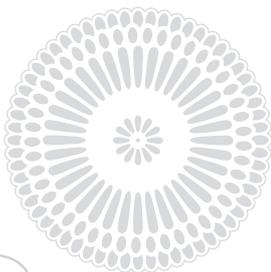
Turbulent combustion / Premixed or diffusion flames
Flame front stability and stabilisation / Flame-wall interaction
Reacting seeded flows/ Flame front propagation in stratified flows
Flames and radiative transfer / Flames and wall transfer

Title of presentation

Research in the area of heat transfer and energy science

Abstract

Research in area of heat transfer and energy science covers many devices involved in different application fields like aeronautic, transport or building. In order to develop scientific knowledge in this domain, it is necessary to come against the difficulty to treat simultaneously a wide range of length and temperature scales: from nanostructures to building, from ice slurry to combustion. This presentation will provide some of the questions that have to be solved in order to progress in characterisation, prediction and control of heat exchange phenomena. Practical scientific examples will be proposed to illustrate the main challenges to take up.



8 FEBRUARY 2007



Name: **Shigeru OBAYASHI**
Institution: **Tohoku University**
Position: **Professor**

Brief Resume of past and present activities

Academic Degrees:

1982 Bachelor of Science, University of Tsukuba
1984 Master of Engineering, University of Tsukuba
1987 Doctor of Engineering, University of Tokyo

Employment History:

1987-89 National Research Council Research Associate, NASA Ames Research Center
Development of numerical algorithms to be applied to three-dimensional Navier-Stokes computations especially for implicit methods and upwind methods

1989-94 Senior Researcher, MCAT Institute, NASA Ames Research Center
Development of three-dimensional unsteady Navier-Stokes code and its application to aeroelasticity

1994-2003 Associate Professor, Tohoku University (1994-2000, Department of Aeronautics and Space Engineering, 2000-2003, Institute of Fluid Science)
Development of aerodynamic optimization methods and their extension to multiobjective, multidisciplinary design optimization and data mining

2003-Present Professor, Tohoku University (Integrated Fluid Informatics Laboratory, Transdisciplinary Fluid Integration Research Center, Institute of Fluid Science)
Development of design exploration algorithms and their application to engineering systems, application of measurement integrated simulation to air turbulence for aviation safety

Title of presentation

Future Direction of Japanese Aeronautical Science and Technology

Abstract

In March 2006, the Japanese government announced the third Science and Technology Basic Plan. The Basic Plan points out several priority targets in the aeronautical research. This talk will review the aeronautical field in the third Basic Plan and discuss the speaker's view for the future direction of Japanese aeronautical research.

8 FEBRUARY 2007



Name: **Philippe KAPSA**
Institution: **Laboratory of Tribology and Dynamic of Systems,
UMR 5513,
ECL, ENISE, CNRS
UMR CNRS-INSA-UCBL 5008 - Ecole Centrale Lyon**
Position: **Directeur de Recherche CNRS**

Brief Resume of past and present activities

Philippe Kapsa is graduated from Ecole Centrale de Lyon in 1976. He presented a Doctor of Science Thesis in 1982 in the field of Tribology, with a research subject concerning the mechanical aspect of anti-wear efficiency of antiwear additives like Zinc Dithiophosphate.

He is Research Director of CNRS and currently the Director of "Laboratoire de Tribologie et Dynamique des Systèmes", UMR 5513, which belongs to Ecole Centrale de Lyon, Ecole National d'ingénieurs de Saint Etienne and the French National Scientific Research Center (CNRS). He is active in the field of Tribology – Materials – Mechanics since he obtained his diploma. The main research activities concern : the friction and wear behaviour of materials in dry or lubricated conditions, Fretting (experimentation and modelling), Tribology of ceramic / ceramic composite materials in high temperature situations, the mechanical properties measurements of thin coatings, experimentation and modelling of surface damage in fretting, standardisation of tribological tests and measurements of surface properties by means of indentation testing.

The fundamental aspects of tribological problems are studied considering also the applications in relation with industry. His main interests concern the study and prediction of tribological behavior from the material and mechanical point of view.

Title of presentation

Materials and Tribology: A challenge for transportation in the future

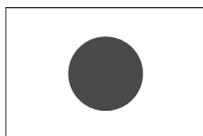
Abstract

Transportation technologies are widely dependent on materials progress. The performances of systems are strongly related to the materials properties. The output efficiency of the systems are for example related to the value of the friction coefficient of various sliding systems in an engine and the wear resistance influences the durability of engines.

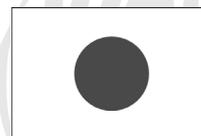
More and more the materials in the mechanical systems are severely loaded and the materials have to become more and more with high performance while the weight have to decrease.

Main important aspects of this problem will be presented and illustrated by recent research results in the field.

SUPPORTING ORGANISATIONS FOR TOHOKU UNIVERSITY



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in France



Ministry of Education,
Culture, Sports and
Technology



Japan Society for the
Promotion of Science



Miyagi Prefecture



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in Japan



Nikkei



日本貿易振興機構(ジェトロ)

PARTNERS FOR 50TH ANNIVERSARY OF INSA LYON

