

## 5. Activities report

### 1) Report on the Global COE Kick-off Forum “In Search of New Development of Mathematical Sciences Based on Modeling and Analysis”

On March 6 and 7, 2009, the kick-off forum of the FY 2008 MEXT Global COE Program “Formation and Development of Mathematical Sciences Based on Modeling and Analysis” was held at Shikon-kan, Surugadai Campus. This Global COE program is based at MIMS, an affiliated research organization of the Organization for the Strategic Coordination of Research and Intellectual Property, Meiji University. Titled “In Search of New Development of Mathematical Sciences Based on Modeling and Analysis,” the forum was attended by some 200 people in total, including prominent researchers from universities and research institutions inside and outside Japan.



At the beginning of the first day, President Hiromi NAYA gave a speech, and it was followed by a speech by Professor Shin-ichi UYE, Vice-President of Hiroshima University (our partner institute in this Global COE program) which entered into a framework agreement with Meiji University on January 30, 2009. Professor UYE expressed his expectations for the two universities to further promote exchange. Later on March 28, we also reached a comprehensive agreement with Ryukoku

University. This is the fruit of a longstanding mathematical sciences interaction between Professor Masayasu MIMURA, Director of MIMS, and Professor Shoji YOTSUTANI, Dean of Faculty of Science and Technology, Ryukoku University, who gave a speech on the first day of the forum. Ryukoku University also reached an agreement with Hiroshima University in September 2009. Based on the foundation of the mathematical sciences consortium of Meiji University, Hiroshima University and Ryukokou University, which is rooted in this Global COE Program, a “new development of Mathematical Modeling Analysis” has started to proceed. Moderated by Vice-President Toshio HARIGAYA, the reception party held on the first day was very successful. Mr. Morihiro NAGAHORI, Chairman of the Board of Trustees, Meiji University, and Mr. Koichi OGIUE, Professor of the National Institution for Academic Degrees and University Evaluation, made a speech, and Mr. Genshiro KITAGAWA, Director-General of the Institute of Statistical Mathematics, made a toast.

Outside Japan, MIMS also signed memorandums with the Istituto per le Applicazioni del Calcolo “Mauro Picone” in Italy and the Institute of Mathematical Modeling and Scientific Computing, National Chiao Tung University in Taiwan just before the forum, and representatives of both institutes gave a lecture in the forum. Other memorandums have already been signed with the Centre d’Analyse et de Mathématique Sociales in France and the Institute of Mathematics, Vietnamese Academy of Science and Technology. In the age of international cooperation and competition, we intend to develop this Global COE Program on a worldwide basis to expand research activities and nurture young researchers in the field of mathematical sciences.

### 6th March 2009

- 14:00- [Opening] Facilitator: Kokichi SUGIHARA (Professor, the University of Tokyo / MIMS Fellow)
- 14:10- [Greetings] Hiromi NAYA (President, Meiji University)
- 14:20- [Greetings] Shin-ichi UYE (Vice-President, Hiroshima University)
- 14:30- [Speech] Shun-ichi AMARI (Director, RIKEN Brain Science Institute)
- 14:50- [Speech] Yoshiaki MAEDA (Professor, Keio University)
- 15:10- [Speech] Ming-Chih LAI (Professor, Institute of Mathematical Modeling and Scientific Computing, National Chiao Tung University, Taiwan)
- 15:30- [Speech] Shoji YOTSUTANI (Professor, Ryukoku University)
- 16:00- [Speech] Michiel BERTSCH (Director, Istituto per le Applicazioni del Calcolo "Mauro Picone", Italy)
- 16:15- [Speech] Kouji SAWADA (President, Tohoku Institute of Technology)
- 16:30- [Speech] Masato WAKAYAMA (Professor, Kyushu University)
- 16:45- [Conclusion] Masayasu MIMURA (Professor, Meiji University / Global COE Program Project Leader)

### 7th March 2009

- 10:00- [Opening] Masayasu MIMURA (Professor, Meiji University / Global COE Program Project Leader)
- 10:10- [Speech] Hiroshi MATANO (Professor, the University of Tokyo / MIMS Fellow)
- 10:30- [Keynote Speech] Henri BERESTYCKI (Directeur, Ecole des Hautes Etudes en Sciences Sociales (EHESS) / Directeur, Centre d'Analyse et de Mathématique Sociales (CAMS), France)
- 11:00- [Speech] Hisashi OKAMOTO (Professor, Kyoto University)
- 11:30- [Speech] Shoichi KAI (Professor, Kyushu University)
- 13:30- [Speech] Nanako SHIGESADA (Professor, Doshisha University)
- 14:00- [Speech] Hideki TAKAYASU (Senior Researcher, Sony Computer Science Laboratories, Inc.)
- 15:00- [Speech] Tatsuo SHIBATA (Associate Professor, Hiroshima University / Meiji University Global COE Program Project Member)
- 15:30- [Speech] Daishin UEYAMA (Associate Professor, Meiji University / Meiji University Global COE Program Project Member)

## 2) Project based analysis and research cluster course (Inter Departmental Curriculum of Meiji University)

### (1) Advanced Study of Mathematical Sciences I “Mathematical Sciences in Arts”

Dates: from September 9 to 11, 2008

Venue: Akihabara Satellite Campus, Meiji University

Coordinator: Hisao TAMAKI (GCOE Program Member)

#### 9th September 2008

10:30 - 12:00 “不可能図形とその立体化“

Kokichi SUGIHARA · The University of Tokyo,  
MIMS Fellow

13:00 - 14:30 “自然が生み出す美の数理的仕組み“

Masayasu MIMURA · Meiji University, GCOE  
Program Leader

14:40 - 16:10 “ペーパークラフト，飛び出す絵本，折り紙“

Jun MITANI · University of Tsukuba

16:20 - 17:50 “見ること，描くこと，作ること“

Kunio KONDO · Tokyo University of Technology

#### 10th September 2008

10:30 - 12:00 “タイリングアートと双曲幾何学“

Kazushi AHARA · Meiji University, GCOE Program Member

13:00 - 14:30 “デジタルアート，エンターテイメント・コンピューティング“

Homei MIYASHITA · Meiji University

14:40 - 16:10 “錯視・数学・美“

Akiyoshi KITAOKA · Ritsumeikan University

#### 11th September 2008

09:00 - 17:50 “演習“ Hisao TAMAKI · Meiji University, GCOE Program Member



### (2) Advanced Study of Mathematical Sciences II “Emotion and Information”

Dates: January 20, 22 and 26, 2009

Venue: Conference room on the 3rd Floor, Shikon-kan,  
Surugadai Campus, Meiji University.

Coordinator: Kaoru ARAKAWA (GCOE Program Member)

#### 20th January 2009

10:30 - 14:30 “感性と顔“

Hiroshi HARASHIMA · The University of Tokyo

14:40 - 17:50 “感性と脳波“

Toshimitsu MUSAHA · Brain Functions Laboratory, Inc.



## 22<sup>nd</sup> January 2009

- 10:30 - 14:30 “感性とヒューマンインタフェース“  
Kohei NOMOTO · Mitsubishi Electric Industrial Design Center
- 14:40 - 17:50 “音楽情報処理 最前線“  
Masataka GOTO · AIST

## 26<sup>th</sup> January 2009

- 10:30 - 12:00 “感性と乳児の泣声“  
Kaoru ARAKAWA · Meiji University, GCOE Program Member
- 13:00 - 16:10 “感性とロボット“  
Takanori SHIBATA · AIST
- 16:20 - 17:50 “感性と情報・まとめ“  
Kaoru ARAKAWA · Meiji University, GCOE Program Member

## (3) Advanced Mathematical Sciences I 「Nonlinear Dynamics and Pattern Formation」

Dates: from November 25 to 28, 2008

Venue: Room A401, Build 2 Annex A, Ikuta Campus,  
Meiji University

Coordinator: Masayasu MIMURA (GCOE Program Leader)

### 25<sup>th</sup> November 2008

- 13:00 - 14:20 “Basic mechanisms of pattern formation“  
Ehud MERON · Ben-Gurion University of the Negev,  
Israel
- 14:40 - 15:40 “Mathematical modeling for the dynamics of dunes“  
Hiraku NISHIMORI · Hiroshima University, GCOE Program Member
- 16:00 - 17:00 “Spirals in the Belousov-Zhabotinsky reaction“  
Tomohiko YAMAGUCHI · AIST
- 17:00 - 17:40 “Discussion“ All Participants

### 26<sup>th</sup> November 2008

- 10:30 - 11:50 “Controlling patterns by temporal and spatial periodic forcing“  
Ehud MERON · Ben-Gurion University of the Negev, Israel
- 13:20 - 14:20 “Swarm oscillators“  
Dan TANAKA · University of Fukui
- 14:40 - 15:40 “Mode-switching and cooperative phenomena of autonomous motors“  
Satoshi NAKATA · Hiroshima University
- 16:00 - 17:00 “Mode bifurcation on a self-running droplet“  
Kenichi YOSHIKAWA · Kyoto University
- 17:00 - 17:40 “Discussion“ All Participants



**27<sup>th</sup> November 2008**

- 10:30 - 11:50 “Multimode localized structures“  
Ehud MERON · Ben-Gurion University of the Negev, Israel
- 13:20 - 14:20 “Out of Equilibrium Microsystems: from micro-swimmers to pattern formation“  
Masaki SANO · The University of Tokyo
- 14:40 - 15:40 “A role of network of unstable patterns in dissipative systems“  
Yasumasa NISHIURA · Hokkaido University, MIMS Fellow
- 16:00 - 17:00 “Controlling spatio-temporal chaos in electroconvection of nematics“  
Yoshiki HIDAHA · Kyushu University
- 17:00 - 17:40 “Discussion“ All Participants



**28<sup>th</sup> November 2008**

- 10:30 - 11:50 “Applications to vegetation pattern formation in water-limited systems“  
Ehud MERON · Ben-Gurion University of the Negev, Israel
- 13:20 - 14:20 “Colony formation in bacteria - experiments and modeling“  
Mitsugu MATSUSHITA · Chuo University
- 14:40 - 15:40 “Smoldering combustion under micro-gravity“  
Masayasu MIMURA · Meiji University, GCOE Program Leader
- 15:40 - 16:20 “Discussion“ All Participants

**(4) Advanced Mathematical Sciences II 「Modeling and Simulation of Complex Systems」**

Date: from 17 February to 20, 2009

Venue: Room A401, Build 2 Annex A, Ikuta Campus, Meiji University and so forth.

Coordinator: Masayasu MIMURA (GCOE Program Leader)

**17<sup>th</sup> February 2009**

- 10:30 - 12:00 “Self-organization in biological systems“  
Masayasu MIMURA · Meiji University, GCOE Program Leader
- 13:00 - 14:30 “Vortex - topology, singularity and scale hierarchy“  
Zensho YOSHIDA · The University of Tokyo
- 14:40 - 16:10 “Statistical mechanics of biological networks“  
Kei TOKITA · Osaka University
- 16:20 - 17:50 “Introduction to complex systems Biology“  
Kunihiko KANEKO · The University of Tokyo



**18<sup>th</sup> February 2009**

- 10:30 - 12:00 “Econophysics: New scientific approach to world economy“  
Hideki TAKAYASU • Sony Computer Science Laboratories, Inc.
- 13:00 - 14:30 “Modeling of volcanic phenomena“  
Takehiro KOYAGUCHI • The University of Tokyo
- 14:40 - 16:10 “Pattern formation in granular media“  
Hide SAKAGUCHI • JAMSTEC
- 16:20 - 17:50 “Computational modeling of a red blood cell towards the development of hemolysis simulator“  
Masanori NAKAMURA • Osaka University

### 19<sup>th</sup> February 2009

- 10:30 - 12:00 “Introduction to sequential data assimilation method“  
Tomoyuki HIGUCHI • The Institute of Statistical Mathematics
- 13:00 - 14:30 “Protein folding simulations by enhanced sampling techniques“  
Yuko OKAMOTO • Nagoya University
- 14:40 - 16:10 “Interfacial instability and pattern formation observed on the Earth’s surface“  
Norihiro IZUMI • Hokkaido University
- 16:20 - 17:50 “Scientific computing on special-purpose computers“  
Junichiro MAKINO • National Astronomical Observatory of Japan

### 20<sup>th</sup> February 2009

- 10:30 - 12:00 “Computational science of turbulence“  
Takashi ISHIHARA • Nagoya University
- 13:00 - 14:30 “Plasma particle simulations of spacecraft environment“  
Hideyuki USUI • Kyoto University
- 14:40 - 16:10 “Summary Lecture: Modeling of hierarchical systems“  
Kanya KUSANO • JAMSTEC, GCOE Program Member

## 3) Workshops and Symposiums

The following workshops and symposiums were conducted in FY2008.

### (1) The Japan-France International Laboratory (LIA-197)

#### ReaDiLab- Mathematical Understanding of Complex Systems Arising in Biology and Medicine

Date: from 27 October to 29, 2008

Venue: Conference room on the 4th Floor, Shikon-kan,  
Surugadai Campus, Meiji University.

Coordinator: Danielle HILHORST (CNRS, France)

Masayasu MIMURA (Meiji University, GCOE  
Program Leader)



## 27<sup>th</sup> October 2008

- 09:30 - 10:00 “Waves and fronts for the nonlocal Fisher equation“  
Benoit PERTHAME · Université Pierre et Marie Curie, France
- 10:00 - 10:30 “Statistical aspects of complex systems“  
Mitsugu MATSUSHITA · Chuo University
- 11:00 - 11:30 “Reaction-diffusion for population dynamics in heterogeneous environments“  
Lionel ROQUES · INRA-Avignon, France
- 11:30 - 12:00 “The motion of a transition layer for a bistable reaction diffusion equation in one dimensional space with heterogeneous environment“  
Shin-Ichiro EI · Kyushu University, MIMS Research Fellow
- 14:00 - 14:30 “Population size control with harvesting/thinning in discrete population dynamics“  
Hiromi SENO · Hiroshima University
- 14:30 - 15:00 “Analytical and numerical insights on the solutions to a predator-prey system posed on non coincident spatial domains“  
Michel LANGLAIS · Université de Bordeaux 2, France
- 15:00 - 15:30 “On distribution and enumeration of attractors in probabilistic Boolean networks“  
Tatsuya AKUTSU · Kyoto University
- 16:00 - 16:30 “Some mathematical topics related with avian flu“  
Yasuhiro TAKEUCHI · Shizuoka University
- 16:30 - 17:00 “Existence of depolarization waves in the human brain“  
Guillemette CHAPUISAT · Université Aix-Marseille III (Paul Cézanne), France
- 17:00 - 17:30 “Chaotic coexistence of cooperators and defectors in spatial public goods games“  
Joe Yuichiro WAKANO · Meiji University, GCOE Program Member

## 28<sup>th</sup> October 2008

- 09:30 - 10:00 “Front propagation under spatially ergodic perturbations“  
Hiroshi MATANO · The University of Tokyo, MIMS Research Fellow
- 10:00 - 10:30 “Spreading speeds in diffusive excitable media“  
Francois HAMEL · Université Aix-Marseille III (Paul Cézanne), France
- 11:00 - 11:30 “A mathematical model of amoeboid locomotion“  
Ryo KOBAYASHI · Hiroshima University, GCOE Program Sub-leader
- 11:30 - 12:00 “Traveling wavefront for a two component lattice dynamical system arising in competition models“

- Jong-Shenq GUO · National Taiwan Normal University, Taiwan
- 14:00 - 14:30 “Bifurcation theory and propagation of waves in excitable media“  
Jean-Pierre FRANCOISE · Université Pierre et Marie Curie, France
- 14:30 - 15:00 “Asymptotic stability of traveling waves in heterogeneous media“  
Ken-Ichi NAKAMURA · The University of Electro-Communications
- 15:00 - 15:30 “Travelling fronts in stochastic Stokes’ drifts“  
Adrien BLANCHET · Université de Toulouse 1, France
- 16:00 - 16:30 “Entire solutions of Allen-Cahn equations“  
Hirokazu NINOMIYA · Ryukoku University
- 16:30 - 17:00 “Travelling wave solutions for some model in phytopathology“  
Arnaud DUCROT · Université Bordeaux 2, France
- 17:00 - 17:30 “A simulation study of pattern transition in a precipitation system“  
Daishin UEYAMA · Meiji University, GCOE Program Member

**29<sup>th</sup> October 2008**

- 09:30 - 10:00 “Title: Mathematical optimization for the design of multisite pacemakers”  
Yvon MADAY · Université Pierre et Marie Curie, France
- 10:00 - 10:30 “Phase transition in replicator-mutator dynamics of biological and social systems“  
Kei TOKITA · Osaka University
- 11:00 - 11:30 “Optimal convergence of the Allen-Cahn equation to generalized motion by mean curvature“  
Matthieu ALFARO · Université Montpellier 2, France
- 11:30 - 12:00 “A role of network of unstable patterns in dissipative systems“  
Yasumasa NISHIURA · Hokkaido University · MIMS Research Fellow
- 14:00 - 14:30 “Minimization of the principal eigenvalue and its applications to population dynamics“  
Eiji YANAGIDA · Tohoku University · MIMS Research Fellow
- 14:30 - 15:00 “Large time behavior of solutions of a diblock copolymer problem“  
Danielle HILHORST · Université Paris-Sud 11, France
- 15:00 - 15:30 “A mathematical analysis of mean-field coupled noisy oscillators“  
Gilles WAINRIB · Institut Jacques Monod, France
- 16:00 - 16:30 “Self-organizing mechanism for development of space-filling neuronal dendrites“  
Atsushi MOCHIZUKI · RIKEN
- 16:30 - 17:00 “Mode analysis of one-dimensional Turing pattern under Spatiotemporal Forcing“



Hiroto SHOJI · Kyoto Prefectural University of Medicine

17:00 - 17:30 “Modeling of the morphogenesis of feathers(in chicken) and Vibrissae(in mice). Dynamical behavior of the null-mean curvature front wave“

Jacques DEMONGEOT · Université Joseph Fourier, France

## (2) Study group for “Science of Hierarchical Structures + Mathematical Modeling and Analysis”

Date : from 30 November to 1 December, 2008

Venue : Hotel New Akao (Atami, Shizuoka)

Coordinator : Kanya KUSANO (JAMSTEC, GCOE Program Member)

Masayasu MIMURA (Meiji University, GCOE Program Leader)



### 30<sup>th</sup> November 2008

12:50 “Opening” Kanya KUSANO · JAMSTEC, GCOE Program Member

13:00 “私の階層構造思考ワールド”  
Yosuke KAMIDE · Kyoto University

13:45 “ランダムな成長現象の数理モデルと企業統計への応用”  
Hideki TAKAYASU · Sony Computer Science Laboratories, Inc.

14:45 “衝撃波研究の学際応用”  
Kazuki TAKAYAMA · Tohoku University

15:30 “Multi-scale simulation study in fusion plasmas”  
Masatoshi YAGI · Kyushu University

16:30 “データ同化手法による非線形現象の理解”  
Kazuyuki NAKAMURA · The Institute of Statistical Mathematics

17:15 “複雑系現象の時系列のモデル解析”  
Yasunori OKABE · Meiji University, GCOE Program Member

### 1<sup>st</sup> December 2008

08:45 “生物・社会ネットワークの統計力学”  
Kei TOKITA · Osaka University

09:30 “インフルエンザ流行伝播シミュレーション；大都市近郊の解析とメタファーモデル”  
Hidenori YASUDA · Josai University

10:30 “高等植物の自家不和合性における自他識別と生殖制御因子”  
Masao WATANABE · Tohoku University



- 11:15 “細胞内共生体の数理:ゲノムの小型化と性発現コントロールの進化”  
Jun YAMAUCHI · Kyoto University
- 13:30 “脳研究における階層性とメゾスコピックモデル”  
Makito OKU · Graduate School, The University of Tokyo
- 14:15 “大自由度力学系の相空間構造における階層性”  
Mikito TODA · Nara Women's University
- 15:15 “粘弾性相分離現象の研究”  
Takehito KOYAMA · JAMSTEC
- 16:00 “プレートテクトニクス・スーパープルームと地球のマントル進化”  
Masaki OGAWA · The University of Tokyo
- 16:45 “Closing” Masayasu MIMURA · Meiji University, GCOE Program Leader

**(3) GCOE symposium for young researchers 「数理生態学」**

Date:from 2 March to 3, 2009

Venue:Room A401, Build 2 Annex A, Ikuta Campus, Meiji University

Coordinator:Joe Yuichiro WAKANO (GCOE Program Member)



**2<sup>nd</sup> March 2009**

- 13:00 - 13:45 “複雑食物網の構造と維持メカニズム”  
Michio KODO · Ryukoku University
- 13:45 - 14:30 “時間スケール階層構造が決める系外資源の間接効果”  
Gaku TAKIMOTO · Toho University
- 14:30 - 15:15 “侵入的外来種の根絶は可能か?: 局所密度に着目した根絶シナリオ検討”  
Tetsuya AKITA · Graduate School, Yokohama National University
- 16:00 - 16:45 “Effect of a single common infection place on the epidemic dynamics in a multi-community system”  
Yasuyuki SAITO · Pusan National University, Korea
- 16:45 - 17:30 “季節的な食害と一年生草本の防御スケジュール”  
Daisuke TAKAHASHI · Graduate School, Kyoto University
- 17:30 - 18:00 “総合討論” All Participants

**3<sup>rd</sup> March 2009**

- 10:00 - 10:45 “海洋鉛直混合と海洋細菌群集の時空間ダイナミクス”  
Takeshi MIKI · National Taiwan University, Taiwan
- 10:45 - 11:30 “動物プランクトンの休眠卵と富栄養化のパラドクス”  
Takeshi NAKAZAWA · National Taiwan University, Taiwan
- 11:30 - 12:15 “生態学の視点で細胞生物学へ切り込む:細胞内共生を例に”

Shin FUKUI · Kyoto University

13:30 - 14:15 “進化ゲーム理論における決定論的モデルと確率論的モデル”

Shun KUROKAWA · Graduate School, The University of Tokyo

14:15 - 15:00 “種分化の集団遺伝学：生殖隔離とは何か?”

Yutaka KOBAYASHI · University of Florida, U.S.A.

#### (4) Mathematical Sciences based on Modeling, Analysis and Simulation (MAS) Seminar

##### 7<sup>th</sup> M&A Seminar

Date : September 5, 2008

Venue : Room A605, Build 2 Annex A, Ikuta Campus, Meiji University

15:30 - 16:10 “Multiphase modelling of biological tissue growth”

John KING · University of Nottingham, Great Britain

16:30 - 17:30 “Combustion in gaseous mixtures with radiative effects”

Joost HULSHOF · Vrije Universiteit Amsterdam,  
the Netherlands



##### 8<sup>th</sup> M&A Seminar

Date : October 21, 2008

Venue : Room 605, Central Building, Ikuta Campus, Meiji University

16:30 - 17:30 “Fast reaction limit of competition-diffusion systems”

Danielle HILHORST · Paris-Sud University, France

##### 9<sup>th</sup> M&A Seminar

Date : November 18, 2008

Venue : Room 605, Central Building, Ikuta Campus, Meiji University

16:30 - 17:30 “経済物理学と企業モデル”

Yuichi IKEDA · Hitachi Research Institute

##### 10<sup>th</sup> M&A Seminar

Date : January 22, 2009

Venue : Room A605, Build 2 Annex A, Ikuta Campus, Meiji University

16:30 - 17:30 “Mathematical models of foraging decisions by ant colonies”

Nick BRITTON · University of Bath, Great Britain

##### 11<sup>th</sup> M&A Seminar

Date: January 27, 2009

Venue: Room A401, Build 2 Annex A, Ikuta Campus, Meiji University

16:30 -17:30 “マランゴニ効果によるアルコール液滴の自発的運動”

Ken NAGAI • Kyoto University

#### 1<sup>st</sup> MAS Seminar

Date: March 17, 2009

Venue: Room A401, Build 2 Annex A, Ikuta Campus, Meiji University

13:30 -14:15 “Phase transitions, entropy and hysteresis”

Alberto TESEI • Rome 1 University, Italy

14:30 -15:15 “Diffusive predation and competition patterns in a noisy environment”

Horst MALCHOW • University of Osnabrück, Germany

15:30 -16:30 “Planar traveling Wave in a combustion model”

Kota IKEDA • Meiji University, "GCOE PD", MIMS Research Fellow,  
Research Promoter

#### 4) Project for Young Researchers

Research title : Research on the mechanism of how the Turing pattern arises on a sphere		
Research representative/title	Young joint researcher/title	Adviser
Yuki TANIGUCHI	Hitoshi MAHARA	Daishin UEYAMA (GCOE Program Member)
MIMS Research Fellow, Research Promoter (Joint Researcher) of the Organization for the Strategic Coordination of Research and Intellectual Property	MIMS Research Fellow, Visiting Researcher of the Organization for the Strategic Coordination of Research and Intellectual Property (National Institute of Advanced Industrial Science and Technology)	Tomohiro YAMAGUCHI (New Energy and Industrial Technology Development Organization)