



RCMS NEWS

13

2012

NAGOYA UNIVERSITY
RESEARCH CENTER FOR MATERIALS SCIENCE

Reports and Communications of RCMS Activities
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March 2012
Issue #13



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Special Events — The International Year of Chemistry —

Throughout 2011, the Nagoya University Research Center for Materials Science, in collaboration with the Graduate School of Science Department of Chemistry and Global COE, jointly held a number of special events in order to commemorate the International Year of Chemistry.

Marie Curie Poster Exhibition (July 21 – August 31, 2011)

Venue: Noyori Materials Science Laboratory Chemistry Gallery



Event Poster



Portion of the Exhibition



Exhibition Site

Chemistry Experiment for School Children (July 27, August 24, 2011)

Venue: Noyori Materials Science Laboratory Chemistry Gallery



Beginning the Experiment



Explosion of Energy!



Participating Elementary School Students

Prof. Noyori Luncheon Forum (August 1, 2011)

Venue: Noyori Materials Science Laboratory Chemistry Gallery



Professor Noyori



Nobel Prize Medal



Luncheon Forum

《Special Exhibition》 “Life of Marie Curie” (October 7–17, 2011)

Sponsors: Embassy of Poland, Asahi Shimbun

Venue: Noyori Materials Science Laboratory Chemistry Gallery



Event Poster



Exhibition Site



Polish Ambassador to Japan and Professor Tatsumi (Director)

Lessons of Marie Curie (October 9, 2011)

Venue: Noyori Materials Science Laboratory Lecture Hall, Chemistry Gallery



Dr. Kissho Picture Story Show



Trying an Experiment!

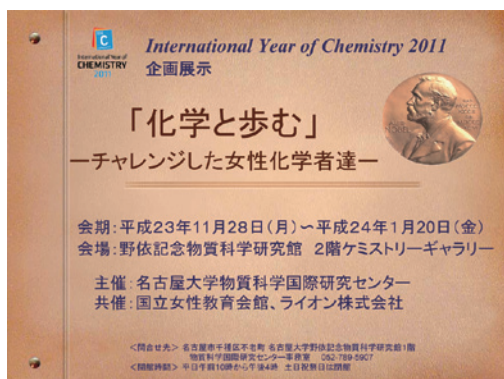


At a Booth for the Event

《Project Exhibition》 “Life with Chemistry” — Female Chemists Who Took a Challenge —

(November 28, 2011 – January 20, 2012)

Venue: Noyori Materials Science Laboratory Chemistry Gallery



Prof. Noyori with Fusako Utsumi, President of the National Women's Education Center of Japan



Exhibition Site

MEXT Project of Integrated Research on Chemical Synthesis 2011

The symposiums below were held through the MEXT Project of Integrated Research on Chemical Synthesis, a pioneering synthesis of a new scientific base and nurturing the next generation of researchers (Hokkaido University, Nagoya University, Kyoto University, and Kyushu University), started in 2010.

The 2nd Young Researchers Forum

(Chitose City, Hokkaido – Shikotsuko National Park Resort, May 27–28, 2011)



Venue: Shikotsuko National Park Resort



Presentations Continuing into Late Night

The 2nd Symposium on MEXT Project of Integrated Research on Chemical Synthesis

(Nagoya University – November 7–8, 2011)



Special Lecturer: Prof. Gunzi Saito



Special Lecturer: Prof. Kohei Tamao

G-COE International Conferences and Symposia

In its final year, Global COE "Elucidation and Design of Materials and Molecular Functions" continued hosting various seminars and symposia in 2011.

G-COE International Symposium & Prof. Yoshimasa Hirata Memorial Lectures (November 28–30, 2011)



From the left, 8th Hirata Medal Recipient Mohammad Movassaghi, Prof. Uemura, 7th Hirata Medal Recipient Dr. Jin-Quan Yu



Prof. Hirata on the screen. Lecture from Dr. Yu



Prof. Hisashi Yamamoto, University of Chicago



Full Audiences at the hall

The 11th and 12th Joint Symposium — University of Münster and Nagoya University

<The 11th Joint Symposium — University of Münster and Nagoya University>

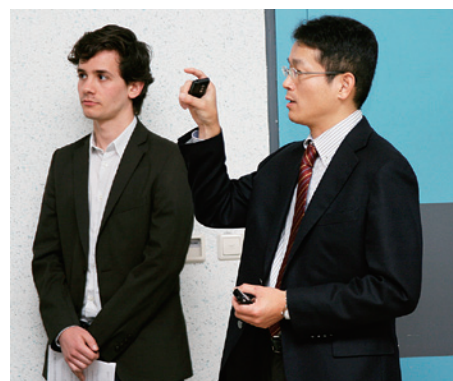
May 9–10, 2011, at University of Münster



Student Participants in the Symposium



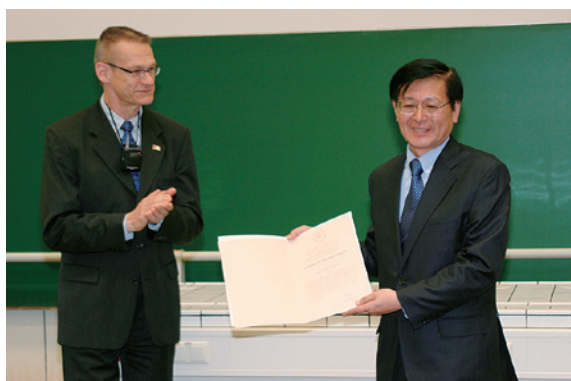
Discussion during the Coffee Break



Prof. Yamaguchi, Nagoya University

<Prof. Tatsumi Awarded Honorary Doctorate from University of Münster>

A ceremony was also held for the conferment of an honorary doctorate from University of Münster to Prof. Kazuyuki Tatsumi, the Director of RCMS.



Prof. Tatsumi received Honorary Doctorate



Memorial Photo

<Eugen and Ilse Seibold Prize 2011>

Prof. Kazuyuki Tatsumi and Prof. Gerhard Erker were awarded the Eugen and Ilse Seibold Prize, conferred once every two years in recognition of Japanese and German academic development. The ceremony took place in Berlin, Germany on May 20th, 2011.



From Left, Prof. Erker, Dr. Kleiner (President, DFG), Prof. Tatsumi



Both professors receiving congratulations

<The 12th Joint Symposium — University of Münster and Nagoya University>

November 3–4, 2011, at Nagoya University



Student Chairman

<150th Anniversary of Japan-German Relationship>

At the time of the seminar for commemoration of the 150th anniversary of Japan-German relationship, a special event was held. On this day, Dr. Alexander Olbrich, the German Consulate-General was able to enjoy and get a rare behind-the-scenes look at a kabuki event.

<http://irtg.rcms.nagoya-u.ac.jp/seminar/2011/111003/index.html>



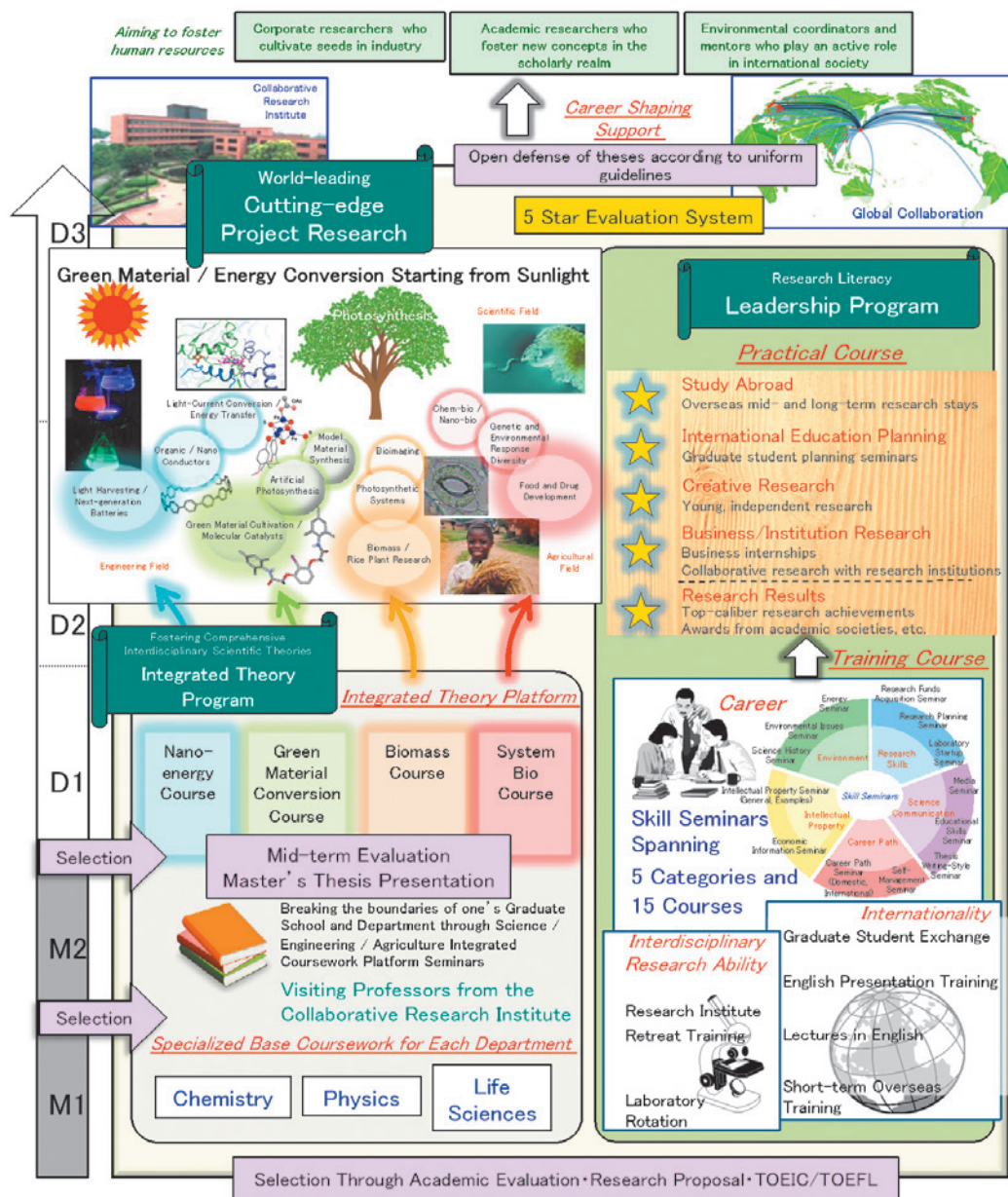
German Students trying Japanese Kabuki Kimono



Photo with Performers

Program for Leading Graduate Schools “Integrative Graduate Education and Research Program in Green Natural Sciences”

The Program for Leading Graduate Schools “Integrative Graduate Education and Research Program in Green Natural Sciences” (2011–2017), spearheaded by Prof. Kunio Awaga, has commendably been adopted and commenced.



Pictured left is Prof. Awaga at the program’s orientation meeting. Attended by students of the targeted academic departments as well as faculty wishing to learn about the full spectrum of the program, the auditorium filled with an enthusiastic audience who came to hear about the new program based on cooperation in the fields of science, engineering, and agriculture and linking universities to research institutes.

Visiting Professors 2011

Prof. Joel S. Miller

Professor Emeritus, The University of Utah



Period of Stay:

May 31 – June 30, 2011

December 16, 2011 – January 13, 2012

Research Theme:

“Development of Synthesis of New Molecule-based Magnet Materials and Organic Electronics”

Joel S. Miller, Professor Emeritus at the University of Utah, stayed at Nagoya University for a total of two months focusing on the research theme of “Develop-

ment of Synthesis of New Molecule-based Magnet Materials and Organic Electronics.” As a global research leader in the development of molecule-based magnet materials, Prof. Miller is especially known for such accomplishments as the development of the world’s first molecule-based magnet compound that uses organic radicals as a component, and a molecule-based ferromagnet with the transition temperature exceeding room temperature. During his stay at RCMS, Prof. Miller gave us many ideas regarding the design and application of novel functional molecular materials, and activated research activities through measurements such as Raman spectroscopy and elemental analysis of the samples of the Prussian Blue analogues he brought from the University of Utah.

Prof. Miller, brimming with curiosity, also made numerous visits to chemistry laboratories throughout Nagoya University during his stay and enjoyed participating in many discussions. His wife accompanied him on both visits to Japan, where they traveled to sightseeing spots in and around Nagoya, especially liking the traditional and old-fashioned atmosphere of Inuyama Castle.

Prof. Roger Earl Cramer

Professor Emeritus, the University of Hawaii



Period of Stay:

September 16, 2011 – January 6, 2012

Research Theme:

“Structure Determination of Transition Metal Complexes”

Prof. Cramer received his doctorate in 1969 from the University of Illinois and became a professor at the University of Hawaii in 1980 after first serving as an

Assistant Professor and later as an Associate Professor. Prof. Cramer then became the dean of chemistry department in 1986, and in 2006 was conferred the title of Professor Emeritus. Through offering much advice in his laboratory seminars, sharing his vast knowledge of coordination chemistry and single-crystal X-ray structural analysis, Prof. Cramer offered us many suggestions to the researches in the Inorganic Chemistry laboratory during his stay at RCMS. He also finished many of incomplete and unsolved structures, through which he indicated us the importance of learning the correct X-ray structural analysis. When a student brought in a new data set, he sat down with him and explained X-ray structural analysis from principle to practice in details, and as a result students were able to improve various structural analysis skills. Furthermore, as a native English speaker, he not only corrected papers for submission but also helped to improve peoples’ English levels at RCMS through everyday conversation.

Research Topic

Visualizing correlated intramolecular hydrogen migration by ultrashort intense laser pulses

Recent advances in laser technology enabled us to generate ultrashort intense laser pulses ($\sim 10^{15}$ W/cm²). Molecules exposed to such intense laser fields promptly eject several electrons to form multiply charged ions, and then undergo a rapid bond breaking process due to the Coulombic repulsion between the constituent atoms. The rapid bond breaking, called “Coulomb explosion”, provides a unique approach to visualize the instantaneous molecular structure during chemical reaction processes, because the momenta of the resultant fragment ions reflect sensitively the geometrical structure of the molecule at the time of laser irradiation.

Recently we demonstrated that hydrogen migration during the isomerization process in deuterated acetylene dication can be visualized by time-resolved Coulomb explosion imaging using a pair of sub-10 fs intense laser pulses [1]. Here we extend our previous study by using 4-body Coulomb explosion imaging to clarify the correlated motion of the two hydrogen atoms during the migration [2].

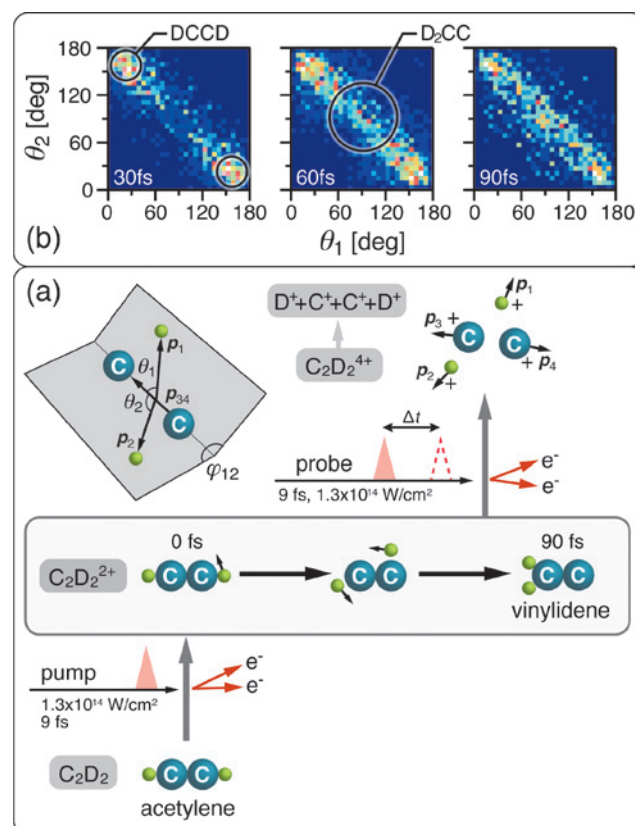
A pair of sub-10 fs intense laser pulses was employed as the pump and probe pulses. The pump pulse was used to doubly ionize acetylene, $C_2D_2 \rightarrow C_2D_2^{2+} + 2e^-$, and to trigger the migration of deuterium atoms. The probe pulse introduced after a time delay (Δt) further ionizes the molecule to $C_2D_2^{4+}$. The fragment ions generated in the Coulomb explosion process, $C_2D_2^{4+} \rightarrow D^+ + C^+ + C^+ + D^+$, are detected using the coincidence momentum imaging method. The momentum of each fragment ion is determined in single Coulomb explosion events (Fig. 1 (a)). The difference of the momentum of the two C^+ ions, $p_{34} = p_3 - p_4$, is used to define the C-C bond. The angles θ_1 and θ_2 between p_{34} and the momenta, p_1 and p_2 , therefore, represent the position of the deuterium atoms in molecular frame.

Figure 1 (b) shows the experimental correlation map of the momentum angles θ_1 and θ_2 for the two deuterium atoms. At a short time delay $\Delta t = 30$ fs (Fig. 1(b)), distributions are found around $(\theta_1, \theta_2) = (0^\circ, 180^\circ)$ and $(180^\circ, 0^\circ)$, which shows that the two deuterium atoms dissociates along the C-C bond in opposite directions. This indicates that the deuterium atoms are around their original carbon cites, and the acetylene structure is preserved at this time delay. On the other hand, at $\Delta t = 90$ fs, a new feature appears around $\theta_1 = \theta_2 = 90^\circ$,

which shows that the deuterium atoms moved from their original carbon cites towards the other.

The strong distribution is observed along the diagonal line ($\theta_2 + \theta_1 = 180^\circ$) in Fig. 1(b). This shows that the increase in θ_1 is always accompanied by the decrease in θ_2 , indicating that the motions of the two deuterium atoms are correlated strongly.

By changing the wavelength and intensity of the pump pulse, the method used in this study can be applied to a variety of reaction processes to provide deep insights into the chemical reaction and offer a new prospect on efficient reaction control.



[1] A. Hishikawa, A. Matsuda, M. Fushitani, E. J. Takahashi, *Phys. Rev. Lett.* **2007**, *99*, 258302.

[2] A. Matsuda, M. Fushitani, E. J. Takahashi, A. Hishikawa, *Phys. Chem. Chem. Phys.* **2011**, *13*, 8697.

Report from the Chemical Instrumentation Facility

As a shared facility for all of Nagoya University, the Chemical Instrumentation Facility (CIF) has 11 nuclear magnetic resonance spectrometers (NMR), 6 mass spectrometers, an electron spin resonance spectrometer, a circular dichroism polarimeter, an infrared spectrophotometer, a UV/Vis/NIR spectrophotometer, a fluorescence spectrophotometer, a polarimeter, a polarized Zeeman atomic absorption spectrometry, and a CHN elemental analyzer. Furthermore, the CIF has taken on the role of the Nagoya University window for SciFinder, an online Chemistry information search service. In 2011, to show the "CIF Utilization Status," 72 research groups within Nagoya University registered, with the number of registered faculty, students, and researchers reaching 658. Year by year, the number of registered research groups will increase, and the CIF will take on an ever-increasing large role in Nagoya University's scientific research.

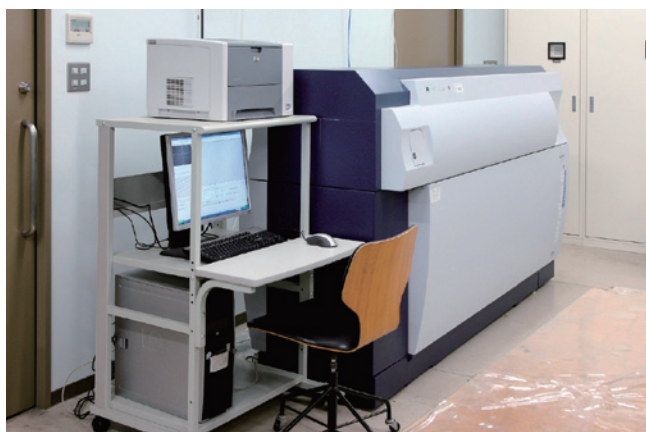


Measurement Room From front to back
1) Solid NMR (700 MHz), 2) Solution NMR (600 MHz),
3) Solution NMR (600 MHz), 4) Solution NMR (500 MHz)

[Introduction to the Setup and Equipment in the CIF]



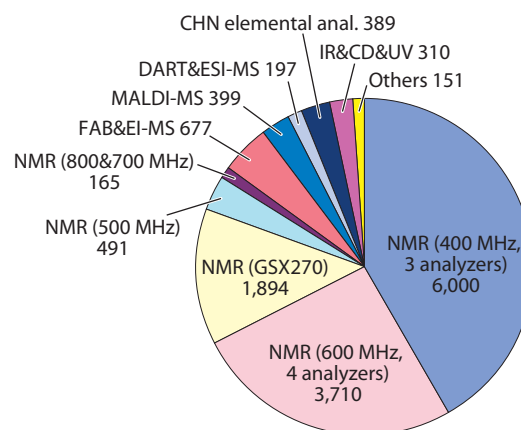
Taking Measurements in the Mass Room



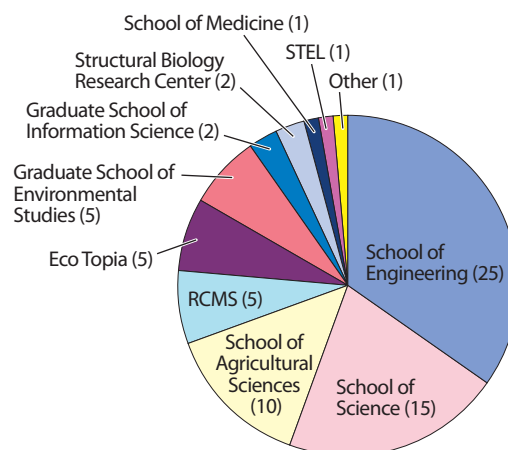
MALDI-TOF/TOF Mass Spectrometer

[CIF Utilization Status]

Utilization Status for the Academic Year 2011
(March 2011 – February 2012)



Number of Uses/Measurements by Instrument



Utilization Status by Department
(Total: 72 Groups, 658 People)

RCMS Seminars

April 21, 2011 Professor Rory Waterman
 (The University of Vermont, U.S.A.)
 Zirconium-Mediated Bond Formation:
 Methods, Molecules, and Materials



RCMS Seminar



- Prof. Rory Waterman
- The University of Vermont, USA
-



"Zirconium-Mediated Bond Formation:
Methods, Molecules, and Materials"

日時：4月21日(木) 16:00より
 場所：野依記念物質科学研究館2F ケミストリーギャラリー
 連絡先：巽 和行 (2474)



G-COE/RCMS Seminar



Prof. Yoshihiko Kanemitsu

Institute for Chemical Research, Kyoto University

「ナノ粒子・カーボンナノチューブのマルチエキシトン」

June 27, 2011
 13:30~14:30

Noyori Materials Science Laboratory 2F, Lecture Room

Host: Kenichiro Itami

June 27, 2011 Professor Yoshihiko Kanemitsu
 (Institute for Chemical Research, Kyoto University)

June 27, 2011 Professor Joel S. Miller
 (University of Utah, U.S.A.)
 Molecule-based Magnets: New Materials,
 Chemistry, and Physics for this Millennium



RCMS • G-COE Seminar



**"Molecule-based Magnets:
 New Materials, Chemistry, and Physics for this Millennium"**

Lecturer : Prof. Joel S. Miller (University of Utah)
Date : Mon. 27 June 15:00 – 17:00
Place : Chemistry Gallery (Noyori Bldg. 2F)

Abstract: Molecule-based materials exhibiting the technologically important property of bulk magnetism have been prepared and studied in collaboration with many research groups worldwide frequently exhibit supramolecular extended 3-D structures. These magnets are prepared via conventional organic synthetic chemistry methodologies, but unlike classical inorganic-based magnets do not require high-temperature metallurgical processing. Furthermore, these magnets are frequently soluble in conventional solvents (e.g., toluene, dichloromethane, acetonitrile, THF) and have saturation magnetizations more than twice that of iron metal on a mole basis, as well as in some cases coercive fields exceeding that of all commercial magnets (e.g., CoSm). Also several magnets with critical temperatures (T_c) exceeding room temperature have been prepared. In addition to an overview of magnetic behavior, numerous examples of structurally characterized magnets made from molecules will be presented. Our groups has discovered 7 families of molecule-based magnets, mostly organic-based, and have significantly contributed to an eight family based upon the Prussian blue structure. Four examples magnetically order above room temperature and as high as 127 °C. These will include $[M^I(CM)_6]_n[A]$, $[M^II(phen)_2]_n[A]$ (A = cyanocarbon etc. electron acceptors) as well as $M[M(CN)_6]$, which for M = V is a room temperature magnet that can be fabricated as a thin film magnet via Chemical Vapor Deposition (CVD) techniques. A newer class of magnets of $[R_n(O,CR)_6][M(CN)_6]$ (M = Cr, Fe; R = Me, t-Bu) composition will also be discussed. For R = Me an interpenetrating, cubic (3-D) lattice forms and the magnet exhibits anomalous hysteresis, saturation magnetization, out-of-phase, $\chi(T)$, AC susceptibility, and zero field cooled-field cooled temperature-dependent magnetization data. This is in contrast to R = t-Bu, which forms a layered (2-D) lattice. Additionally, new magnets possessing the nominal Prussian blue composition, $M[M(CN)_6]$, and $(Cation)_xM[M(CN)_6]$, but not their structure will be described.

Contact : Kunio Awaga (ext. 2487)



RCMS • G-COE Seminar



**"Magneto-Optic and Magneto-Electronic Behaviors from
 Inter-Molecular Excited States in Organic Materials"**

Lecturer : Prof. Bin Hu (University of Tennessee)
Date : Thu. 15 SEP 15:00 – 17:00
Place : Chemistry Gallery (Noyori Bldg. 2F)

Abstract: Magneto-optic and magneto-electronic behaviors can be reflected as magnetically controllable optic functions and magnetically controllable electronic functions. Therefore, magneto-optic and magneto-electronic behaviors can form unique mechanisms to realize mutual amplifications between magnetic, electronic, and optic functions towards the development of new multi-functional materials for renewable-energy, sensing, and detection applications. Theoretically, magneto-optic and magneto-electronic behaviors require mutually coupled magnetic, electronic, and optic functions. Experimentally, we observed that inter-molecular excited states can demonstrate magnetic field effects of photoluminescence which is normally difficult to obtain from intra-molecular excited states. Particularly, this experimental observation suggests that inter-molecular excited states have magneto-optic behavior through spin-dependent light emission. Furthermore, our experimental studies have found that inter-molecular excited states can exhibit magneto-capacitance phenomenon. Clearly, this magneto-capacitance phenomenon suggests that inter-molecular excited states also have magneto-electronic behavior through spin-dependent electrical polarization. As a result, inter-molecular excited states can have potential applications in magneto-optic, magneto-electronic, and magneto-optoelectronic devices based on mutually coupled magnetic, electronic, and optic functions. This presentation will discuss fundamental processes involved in magneto-optic, magneto-electronic, and magneto-optoelectronic behaviors in inter-molecular excited states in organic materials.

Contact : Kunio Awaga (ext. 2487)

September 15, 2011 Professor Bin Hu
 (University of Tennessee, U.S.A.)
 Magneto-Optic and Magneto-Electronic Behaviors from
 Inter-Molecular Excited States in Organic Materials


September 28, 2011 Professor Dr. Florian Müller-Plathe
(Technical University Darmstadt, Germany)
Understanding Ionic Liquids by Computer Simulations

G-COE & RCMS Seminar Nagoya University

Theoretical Chemistry Colloquium

Time: September 28, 2011 (Wednesday), 16:00-
Place: Chemistry Gallery, RCMS 2nd Floor

Understanding Ionic Liquids by Computer Simulations



Prof. Dr. Florian Müller-Plathe
Professor of Physical Chemistry
Head of the Theoretical Physical Chemistry Group at the
Eduard-Zintl-Institute for Inorganic and Physical Chemistry
Technical University Darmstadt, Germany

Contact: Prof. Dr. Stephan Irlé
sirle@iar.nagoya-u.ac.jp, Tel.: 6397

RCMS - IRTG Seminar

Prof. Dr. Hans-Ulrich Humpf
(Institut für Lebensmittelchemie
Universität Münster, Germany)



“Circular Dichroism: Principles and Applications”

October 1 (Sat), 2011 14:00-15:30
Chemistry Gallery,
Noyori Materials Science Laboratory
Susumu Saito #5946

October 1, 2011 Professor Dr. Hans-Ulrich Humpf
(Universität Münster, Germany)
Circular Dichroism: Principles and Applications


October 26, 2011 Professor Dr. Marek Wojcik
(Jagiellonian University, Krakow, Poland)
Theoretical modeling of vibrational spectra
and multidimensional proton tunneling in
hydrogenbonded systems

G-COE & RCMS Seminar Nagoya University

Theoretical Chemistry Colloquium

Time: October 26, 2011 (@), 16:00-
Place: Chemistry Gallery, RCMS 2nd Floor


Theoretical modeling of vibrational spectra and multidimensional proton tunneling in hydrogen-bonded systems



Prof. Dr. Marek Wojcik
Professor of Chemical Sciences
Laboratory of Molecular Spectroscopy
Faculty of Chemistry
Jagiellonian University, Krakow, Poland

Contact: Prof. Dr. Stephan Irlé
sirle@iar.nagoya-u.ac.jp, Tel.: 6397

G-COE/RCMS Seminar



Prof. Dr. Seth Herzon
Assistant Professor: Department of Chemistry, Yale University

“Synthetic and Chemical Biologic Studies of the Diazofluorene Antitumor Antibiotics”

November 4th, 2011
16:00~17:30
Noyori Materials Science Laboratory 2F, Lecture Room
Host: Kenichiro Itami

November 4, 2011 Professor Dr. Seth Herzon
(Department of Chemistry, Yale University, U.S.A.)
Synthetic and Chemical Biologic Studies of the
Diazofluorene Antitumor Antibiotics

November 9, 2011 Professor Thomas Baumgartner
 (University of Calgary, Canada)
 Conjugated Phosphaorganics ? — From
 Organometallics to Organic Electronics and
 Self-Assembled Nanomaterials

G-COE & RCMS Seminar

Thomas Baumgartner
 (University of Calgary, Canada)



“Conjugated Phosphaorganics – From Organometallics to
 Organic Electronics and Self-Assembled Nanomaterials”



日時：11月9日(水) 16:30 – 18:00
 場所：野依記念研究館2Fケミストリーギャラリー
 連絡先：山口茂弘 (789-2291)

G-COE & RCMS Seminar

Prof. Shih-Yuan Liu
 (University of Oregon, USA)



“Developing the Basic Science and Applications of
 Boron(B)-Nitrogen(N) Containing Heterocycles”



日時：12月5日(月) 16:30 – 18:00
 場所：野依記念研究館2Fケミストリーギャラリー
 連絡先：山口茂弘 (789-2291)

December 5, 2011 Professor Shih-Yuan Liu
 (University of Oregon, U.S.A.)
 Developing the Basic Science and Applications of
 Boron(B)-Nitrogen(N) Containing Heterocycles

December 7, 2011 Professor Klaus Jurkschat
 (University of Dortmund, Germany)
 Intramolecular Donor-Acceptor Interactions in
 Main Group Element Compounds.
 — From Academic Curiosity and Industrial
 Application —

G-COE & RCMS Seminar


Professor Klaus Jurkschat
 (University of Dortmund, Germany)



“Intramolecular Donor–Acceptor Interactions
 in Main Group Element Compounds.
 –From Academic Curiosity and Industrial Application–”

December 7th, 2011, 16:30–18:00
Noyori Materials Science Laboratory 2F
Conference Room



Contact: Susumu SAITO, ext. 5945


RCMS · G-COE Seminar


Professor Pierre Braunstein



CNRS-Université de Strasbourg, France

“The Chemistry of Heterofunctional Ligands:
 from Homogeneous Catalysts to Clusters”


日時：12月16日(金) 16:00より
 場所：野依記念物質科学研究館2Fケミストリーギャラリー
 連絡先：巽 和行 (内線2474)

December 16, 2011 Professor Pierre Braunstein
 (CNRS-Université de Strasbourg, France)
 The Chemistry of Heterofunctional Ligands:
 from Homogeneous Catalysts to Clusters


January 10, 2012 Professor Joel S. Miller
(University of Utah, U.S.A.)
Extraordinarily Long 2.8-Å C-C Bonds
— What is a bond?

 **RCMS • G-COE Seminar** 

**"Extraordinarily Long 2.8-Å C-C Bonds
—What is a bond?"**



Lecturer : Prof. Joel S. Miller (University of Utah)
Date : Jan. 10th, 16:00 – 18:00
Place : Chemistry Gallery (Noyori Bldg. 2F)

GCOE & RCMS Seminar Nagoya University 

Theoretical Chemistry Colloquium

Time: Thursday, February 2, 16:00-17:00
Place: Chemistry Gallery, RCMS 2nd Floor


Modeling of Interfaces in Oxide Materials

Dr. Craig A. J. Fisher
Japan Fine Ceramics Center, Nagoya

Contact: Prof. Dr. Stephan Irle
sirle@chem.nagoya-u.ac.jp, Tel.: 6397

February 2, 2012 Dr. Craig A. J. Fisher
(Japan Fine Ceramics Center, Nagoya)
Modeling of Interfaces in Oxide Materials


February 8, 2012 Professor Dr. Henryk A. Witek
(National Chiao Tung University, Hsinchu, Taiwan)
When finite becomes infinite, and infinite becomes
finite ...

LGS & RCMS Seminar Nagoya University 

Theoretical Chemistry Colloquium

Time: February 8, 2011, 16:00-17:00
Place: Chemistry Gallery, RCMS 2nd Floor

**When finite becomes infinite, and infinite becomes
finite ...**



Prof. Dr. Henryk A. Witek
Professor of Theoretical Chemistry
Department of Applied Chemistry
National Chiao Tung University, Hsinchu, Taiwan

Contact: Prof. Dr. Stephan Irle
sirle@chem.nagoya-u.ac.jp, Tel.: 6397

 **RCMS • G-COE Seminar** 



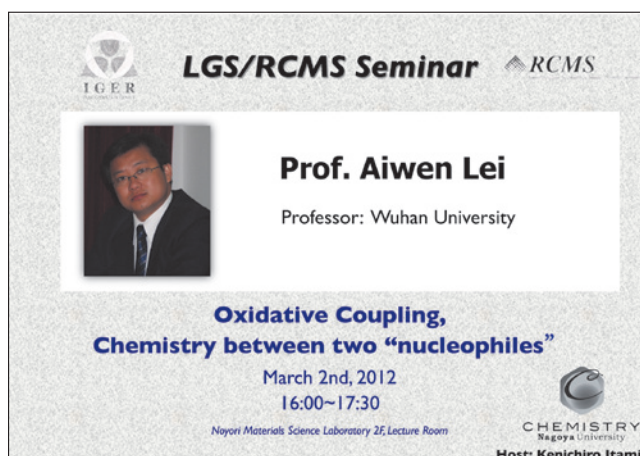
Prof. Hiroshi Nishihara
Department of Chemistry, Graduate School of Science
The University of Tokyo


「配位プログラミングによる
光・電子機能性分子ネットワークの創製」


13:30-14:30, March 1, 2012
Lecture Hall 2F
Noyori Materials Science Laboratory
Host: Kazuyuki Tatsumi (2474)


March 1, 2012 Professor Hiroshi Nishihara
(Graduate School of Science The University of Tokyo)

March 2, 2012 Professor Aiwen Lei
(Wuhan University, China)
Oxidative Coupling, Chemistry between
two “nucleophiles”



LGS/RCMS Seminar 


 **Prof. Aiwen Lei**
Professor: Wuhan University




**Oxidative Coupling,
Chemistry between two “nucleophiles”**

March 2nd, 2012
16:00~17:30


Noyori Materials Science Laboratory 2F, Lecture Room

 **CHEMISTRY**
Nagoya University

Host: Kenichiro Itami

IGER and RCMS Seminar 

Ultrafast molecular science at ALLS


 **Prof. François Légaré**
INRS-Énergie Matériaux
Télécommunications (EMT)
Research Centre, Canada

March 21, 2012, 16:00 - 17:00
Chemistry Gallery, Noyori Materials
Science Laboratory


host: Akiyoshi Hishikawa (2494)

March 21, 2012 Professor François Légaré
(INRS-Énergie Matériaux Télécommunications (EMT)
Research Centre, Canada)
Ultrafast molecular science at ALLS

March 21, 2012 Professor Ryuji Itakura
(Kansai Photon Science Institute, Japan Atomic Energy
Agency)
Electron-ion coincidence spectroscopy for dissociative
ionization of ethanol in intense laser fields



IGER and RCMS Seminar 


**Electron-ion coincidence
spectroscopy for dissociative
ionization of ethanol in intense laser
fields**

 **Prof. Ryuji Itakura**
Kansai Photon Science Institute,
Japan Atomic Energy Agency,
Japan

March 21, 2012, 17:00 - 18:00
Chemistry Gallery, Noyori Materials
Science Laboratory

host: Akiyoshi Hishikawa (2494)

 **RCMS Seminar** 

Prof. Richard Welter 

Laboratoire DECOMET,
Université de Strasbourg, France

“From Intermetallic Compounds and Magnetism
to Light Induced Reduction in Small Molecules:
An Example of Pluridisciplinary Approach in Chemistry”

日時：3月22日（木）16：00
場所：野依記念物質科学研究館2Fケミストリーギャラリー
連絡先：異 和行（2474）

March 22, 2012 Professor Richard Welter
(Laboratoire DECOMET, Université de Strasbourg, France)
From Intermetallic Compounds and Magnetism to
Light Induced Reduction in Small Molecules:
An Example of Pluridisciplinary Approach in Chemistry

Students from University of Münster



Christoph Glotzbach

Period of Stay: April 26 – October 1, 2011

Research Theme: Oligonitrile – Boron Compounds and their fluorescence properties



Zhaoyang Zeng

Period of Stay: May 13 – November 1, 2011

Research Theme: Synthesis and Characterization of Inorganic Organic Hybrid Materials via intercalation of Phthalocyanine derivatives into Inorganic Clay



Christoph Grohmann

Period of Stay: September 30, 2011 – March 30, 2012

Research Theme: Synthesis of Iron (NHC) Complexes and their Application in Catalysis



Lilia Lohrey

Period of Stay: September 30, 2011 – March 30, 2012

Research Theme: Rapid Synthesis of Bioactive Arylthiazoles through C-H Coupling



Marcel Harhausen

Period of Stay: October 2 – November 3, 2011

Research Theme: Activation of Dienes with Frustrated Lewis Pairs



Adrian Schulte

Period of Stay: October 1, 2011 – January 30, 2012

Research Theme: Stereoselective Synthesis of all-cis-Cyclohexane-1,2,3-triamines



Anna Junker

Period of Stay: February 1 – June 25, 2012

Research Theme: Development of a [18F]-labeled PET-Tracer for the Imaging of Chemokine-Receptor 5

Visits to the Chemistry Gallery

2011 was another year full of visits to the Chemistry Gallery on the 2nd Floor of the Noyori Materials Science Laboratory. With the United Nations General Assembly designating 2011 as the International Year of Chemistry, numerous special events were held, and many were seen enjoying themselves taking pictures with the life-sized cutout of Prof. Noyori, who served as the Japanese Chairman for the International Year of Chemistry.



Guests Observing the Nobel Medal



This Year's Developments

In addition to reports outlining research results and information disclosure to the public, there were many notable happenings this past year at the Research Center for Materials Science.

Prof. Kazuyuki Tatsumi, Director of the Research Center for Materials Science, was inaugurated as President of the International Union of Pure and Applied Chemistry (IUPAC)



Prof. Kazuyuki Tatsumi

All lighting equipment in RCMS has been changed to LED lighting!

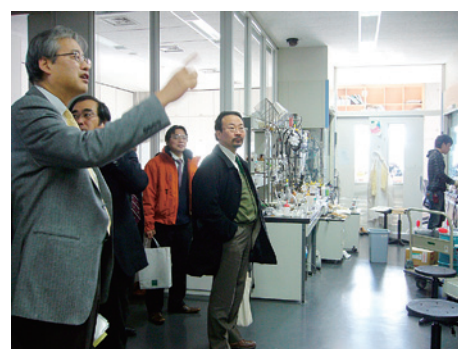


LED Lighting



Exchanging the lights in the lecture hall

*Energy Conservation Patrol Comes into Effect
Total Energy Consumption from April-December 2011:
3.6% reduction of electricity and 7.4% reduction in gas compared to the previous year. RCMS is recognized for its efforts and activities dedicated to reducing overall energy consumption.*



Energy Conservation Patrol

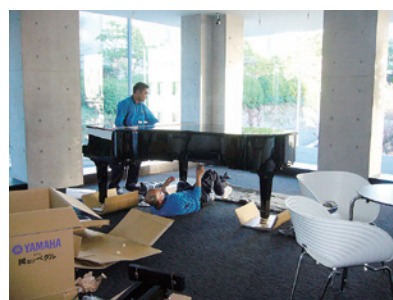
A grand piano has been set up in the Chemistry Gallery Lounge



Moving the Piano to the Second Floor Via Crane



Moving from the South Wing to the North Wing



Assembling the Piano in the Lounge

Staff List

Director	Professor	Kazuyuki Tatsumi	(2474)	i45100a@nucc.cc.nagoya-u.ac.jp
Special Advisor	University Professor	Ryoji Noyori		
Organic Synthesis	Professor	Masato Kitamura	(2957)	kitamura@os.rcms.nagoya-u.ac.jp
	Assistant Professor	Yasutomo Segawa	(4525)	ysegawa@nagoya-u.jp
	Assistant Professor	Shohei Saito	(5750)	s_saito@mail.chem.nagoya-u.ac.jp
	Research Fellow	Namdev Vatmurge	(2960)	vatmurge@os.rcms.nagoya-u.ac.jp
Inorganic Synthesis	Professor	Kazuyuki Tatsumi	(2474)	i45100a@nucc.cc.nagoya-u.ac.jp
	Associate Professor	Hideo Takagi	(5473)	htakagi@chem.nagoya-u.ac.jp
	Assistant Professor	Yasuyuki Yamada	(2471)	yy@chem.nagoya-u.ac.jp
Functional Materials	Professor	Kunio Awaga	(2487)	awaga@mbox.chem.nagoya-u.ac.jp
	Assistant Professor	Yasumitsu Miyata	(3660)	yas-miyata@nano.chem.nagoya-u.ac.jp
	Assistant Professor	Akitaka Matsuda	(2945)	amatsuda@chem.nagoya-u.ac.jp
Biomaterials Research	Professor	Yoshihito Watanabe	(3049)	p47297a@nucc.cc.nagoya-u.ac.jp
	Associate Professor	Tohru Yoshihisa	(2950)	tyoshihi@biochem.chem.nagoya-u.ac.jp
	Assistant Professor	Takashi Fukushima	(2955)	fukushima.takashi@i.mbox.nagoya-u.ac.jp
Molecular Catalysis	University Professor	Ryoji Noyori	(2956)	noyori@chem3.chem.nagoya-u.ac.jp
	Assistant Professor	Hiroshi Naka	(5411)	h_naka@nagoya-u.ac.jp
	Assistant Professor	Shinji Tanaka	(2960)	tanaka@os.rcms.nagoya-u.ac.jp
Collaborative Studies	Guest Professor	Hiroshi Nishihara (Professor, University of Tokyo School of Science)		
	Guest Professor	Joel Miller (Professor Emeritus, University of Utah)		
	Guest Professor	Roger Cramer Professor Emeritus, University of Hawaii)		
	Guest Professor	Carlo Mealli (Professor, Istituto di Chimica dei Composti Organometallici [ICCOM])		
Chemical Instrumentation Facility	Manager/ Professor	Shigehiro Yamaguchi	(2291)	yamaguchi@mbox.chem.nagoya-u.ac.jp
	Assistant Professor	Chunguang Han	(3072)	hanc@cic.nagoya-u.ac.jp
	Technical Personnel	Hiroshi Maeda	(3069)	maeda@cic.nagoya-u.ac.jp
	Technical Personnel	Kinichi Oyama	(3069)	oyama@cic.nagoya-u.ac.jp
International Advisory Board		Ivano Bertini (Professor, University of Florence)		
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		Roald Hoffman (Professor, Cornell University – Laureate, Nobel Prize in Chemistry)		
		Henri B. Kagan (Professor, Paris-Sud 11 University)		
		Helmut Sigel (Professor, Universität Basel)		
		Atsuko Tsuji (Editorial Writer, Asahi Shimbun)		
Cooperating Faculty	Professor	Hisanori Shinohara (Graduate School of Science)	(2482)	noris@nagoya-u.jp
	Professor	Toshiya Endo (Graduate School of Science)	(2490)	endo@biochem.chem.nagoya-u.ac.jp
	Professor	Kenichiro Itami (Graduate School of Science)	(6098)	itami.kenichiro@a.mbox.nagoya-u.ac.jp
	Professor	Akiyoshi Hishikawa (Graduate School of Science)	(2494)	hishi@chem.nagoya-u.ac.jp
	Associate Professor	Yukio Ouchi (Graduate School of Science)	(2485)	ohuchi@chem.nagoya-u.ac.jp
	Associate Professor	Susumu Saito (Institute for Advanced Research)	(5945)	saito.susumu@f.mbox.nagoya-u.ac.jp
RCMS Office	Distinguished Invited University Professor	Sumio Iijima	(6460)	ijimas@nagoya-u.jp
	Administrative Staff	Yuko Kihara	(5907)	kihara@os.rcms.nagoya-u.ac.jp
	Administrative Staff	Evan Gach	(5911)	gach@os.rcms.nagoya-u.ac.jp
	Administrative Staff	Sakiko Komura	(5902)	komura@os.rcms.nagoya-u.ac.jp
	Administrative Staff	Sonoe Tankiku	(5908)	tankiku@os.rcms.nagoya-u.ac.jp