

出國報告（出國類別：其它-參訪交流）

赴日訪問及出席第 6 屆 Gold International Conference

出國報告

出國人員：行政院國家科學委員會 牟中原 副主任委員

派赴國家：日本

出國期間：101 年 9 月 4 日至 8 日

報告日期：101 年 10 月 17 日

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壹、目的

2012 年9月4-8日，本會為開拓與日本重要科研機構及Funding Agency 之合作交流，由本人專程赴日本拜會獨立行政法人學術振興會(JSPS)及獨立行政法人日本物質.材料研究機構(NIMS)，以瞭解雙方建立合作夥伴關係的可能性。在東京停留期間亦順道出席在日本舉行之「第6屆金科學及其應用國際研討會」(The 6th Gold International Conference)並發表論文。

貳、過程與觀察

■主要行程/

1. 拜訪日本學術振興會 (the Japan Society for the Promotion of Science, JSPS)

本人由駐日本代表處科技組蔡明達組長和吳悅榮秘書陪同拜會 JSPS。JSPS 由淺島誠 理事、戶渡速志 理事、加藤久 國際事業部部長、土田牧 國際事業部地域交流課長、松崎嘉代 國際事業部地域交流課係長出席接待。加藤久部長首先表示為安西理事長無法出席會面一事致意，並由土田牧課長簡報介紹 JSPS 概要。JSPS 於簡報中特別介紹 JSPS 的人才招聘計畫，以及「研究據點形成事業 (Core-to-Core Program)」的「亞、非學術基盤形成型 (Asia-Africa Science Platforms)」計畫中，台籍學者及研究機構的參加情況。

我方由駐日科技組蔡明達組長介紹國科會概要，並介紹在台日籍學者參加本會計畫情況。本人首先表示感謝 JSPS 開放人才招聘計畫給我國籍學者，並表示我國政府在組織改

造後將提昇本會位階為科技部，除積極推動既有之基礎研究外，未來亦將注重國際競爭力及產學合作發展，加強將研究成果轉化為產業應用的計畫補助；並向日方介紹「龍門計畫」內容，及邀請安西理事長訪台。對於 JSPS 於簡報中所介紹的「研究據點形成事業（Core-to-Core Program）」之「亞、非學術基盤形成型(Asia-Africa Science Platforms)」計畫，應可向我國學者廣為宣傳推介。

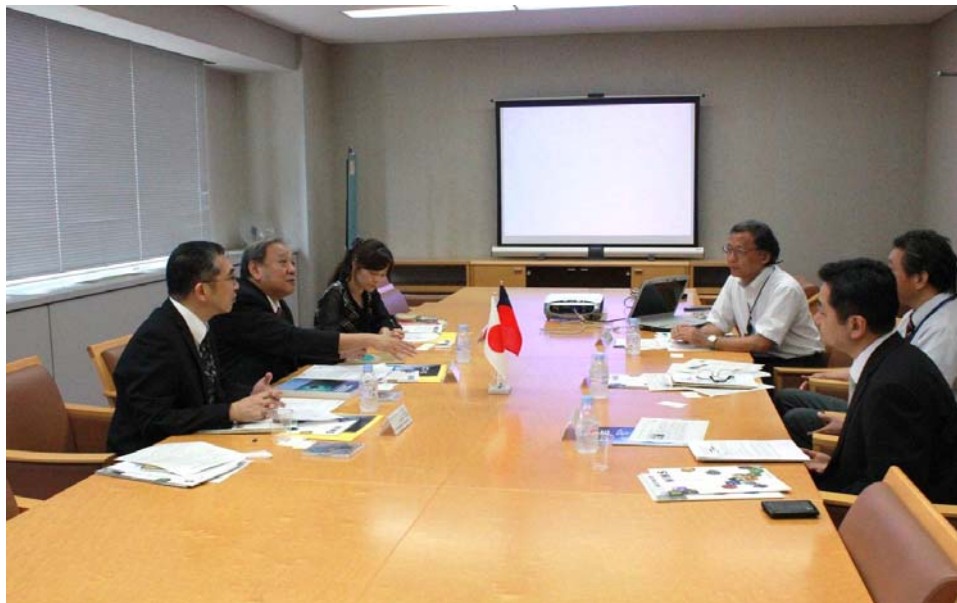


2. 拜訪日本獨立行政法人物質.材料研究機構(National Institute for Materials Science, NIMS)

(1) 本人由駐日本代表處科技組蔡明達組長和吳悅榮秘書陪同轉赴筑波拜會NIMS。NIMS由室町英治 理事、小山內優 理事、永川城正 外部連攜部門學術連攜室次長出席接待。永川次長首先表示為潮田理事長無法出席會面一事致意，並進行簡報介紹NIMS概要；我方由駐日科技組蔡明達組長介紹本會概要。

本人向 NIMS 表示我方之合作意願，希望能有機會自人員交流選送派遣、共同研討會為開端，加強雙方合作關係。NIMS 亦表示，潮田理事長指示應積極推動與本會進行合作，若能促成雙方簽署 MOU 以落實各項合作活動，將對雙方均具有正面效益，本人亦回應樂見雙方朝此一方向共識努力，初期可從學術研討會開始，有助於瞭解合作對象及雙方所長後，再進行人才交流或研究計畫等合作。本人亦向 NIMS 介紹本會的「龍門計畫」和「千里馬計畫」內容。

NIMS 接著表示，雖然 NIMS 在支援補助之經費資源上可能無法與本會相比，然 NIMS 在材料領域的研究和應用在日本具領先地位，可以和台灣在此相關領域的學者專家交流合作。我方則表示，本會可選送優秀博士後人員至 NIMS 研究，亦希望 NIMS 可提供學員有關住宿及媒合所屬研究室等協助。由於潮田理事長、永川次長偕相關學者一行已計畫於 2013 年 1 月，接受台灣大學邀請訪問我國，本人對此表示本會歡迎之意，並期許以此時機為簽約目標。



(2) 參觀NIMS國際奈米結構中心(MANA)

與室町理事等會談之後，自千現園區移動至並木園區 MANA 研究棟，MANA為日本文部科學省補助設立的6個世界頂尖研究據點計畫之一，日方由藤田高弘 MANA事務部門長、有賀克彥 主任研究者及山內悠輔 獨立主任研究者接待。首先由藤田高弘 MANA事務部門長介紹MANA概要後，參觀有賀克彥研究室及山內悠輔研究室。MANA對於本人訪問該機構的訊息，亦登載於該單位網頁。





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MANAについて

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2011年

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記事・報道

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Media Stream Site

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ニュース

台湾国家科学委員会副主任がMANAを訪問

2012.09.05

(2012.09.07 更新)

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2012年9月5日、台湾国家科学委員会副主任(副大臣)の牟中原氏がMANAを訪問されました。藤田高弘 MANA事務部門長よりMANAの概要説明を受けられた後、WPI - MANA棟を見学されました。



MANAの概要説明を受けられる牟氏
(中央)

牟氏は生物医学分野のナノ材

料学者(国立台湾大教授を兼任)でもあり、見学先のラボでは非常に活発に質問をされ、対応したMANAの研究者と議論を交わされました。



WPI-MANA棟6階にて、藤田高弘 MANA事務部門長から設備の説明を受けられる牟氏



有賀克彦 主任研究者(左)より、研究内容について概要説明を受けられる牟氏



山内悠輔 独立主任研究者(左)と、研究内容について議論される牟氏

3. 出席「第6屆金科學及其應用國際研討會」(6th Gold International Conference)

本項國際性學術會議於9月6至8日在東京舉辦，除有來自全球學者專家發表論文，亦有POSTER獎項的競賽。本人於會議中以“Control of the Size of Supported Gold Nanoparticles by Tuning the Metal-Support Interactions”為題發表論文；來自國內清華大學的Chun Ya Chen並獲得大會POSTER競賽獎項。本次大會另有安排以日本JST補助進行大型研究計畫(CREST)的(Catalyst Design of Gold Clusters through Junction Effect with Metal oxides, Carbons, and Polymers)成果發表論壇，提供與會學者瞭解日本在Gold Catalysts and Their Applications to Green Chemistry 課題發展的作業機制。

Program Time Table

9/6 (THU) am				
Time	5F Room A (EMINENCE)			
8:50	Opening			
9:00	Chair: <i>M. Tokunaga</i> 1A-PL: A. Stephen K. Hashmi (Univ. of Heidelberg, Germany) New Options with New Ligands in Homogeneous Gold Catalysis			
Break (10:00-10:20)				
10:20	5F Room A (EMINENCE)	42F Room B (FUJI)	42F Room C (TAKAO)	44F Room D (HARMONY)
	Chairs: <i>M. Tokunaga</i> <i>F. Wang</i>	Chairs: <i>H. H. Kung</i> <i>C. Qi</i>	Chairs: <i>T. Akita</i> <i>I. O. Koshevoy</i>	Chairs: <i>H. Shiromaru</i> <i>Q. Xu</i>
	1A-TL1 Mathias Brust (Univ. of Liverpool, UK) Monolayer Protected Clusters of Gold: Building Blocks, Functional Materials, Macromolecules, Biomedical Tools and more	1B-KL1: Graham J. Hutchings (Cardiff Univ., UK) Catalysis Using Supported Gold and Gold Palladium Nanoparticles	1C-KL2 : F. Dean Toste (Univ. of California, Berkeley, USA) Enantioselective Catalysis with Gold(I) Complexes	1D-KL3: Lai-Sheng Wang (Brown Univ., USA) Size-Selected Gold Clusters: Structure Evolution and O ₂ Activation
11:00	<i>Synthesis of Fine Chemicals</i>	<i>Selective Oxidation in Gas Phase</i>	<i>Homogeneous Catalysis</i>	<i>Cluster Sciences</i>
	1A-01: T. Ishida Metal Oxide- and Gold-Catalyzed Ammoxidation of Alcohols	1B-01: T. A. Nijhuis Kinetic Study of the Direct Propene Epoxidation over Gold-Titania Catalysts: Enhancement of the Hydrogen Efficiency	1C-01: D. Zuccaccia Ion Pairing in Cationic Gold Catalysts	1D-01: Y. Negishi Size Dependence of Origin of Stability of Thiolate-Protected Gold Clusters
11:20	1A-02: Y. H. Rhee Developing Au-Catalyzed Domino Heteroaddition-[3,3]-sigmatropic Rearrangement	1B-02: M. Boronat Propene Epoxidation with H ₂ and O ₂ over Gold Atoms Supported on Defective Graphene: a Theoretical Study	1C-02: S. A. Blum Gold and Palladium Dual Catalysis	1D-02: D. Tanaka Platonic Hexahedron Composed of Six Porphyrins and an Au Cluster
11:40	1A-03: T. Iwai Construction of Medium-Sized Rings through Gold-Catalyzed Cyclization of Acetylenic Silyl Enol Ethers: Impact of Ligand Cavity Sizes	1B-03: M. C. Kung Au-Catalyzed CO Oxidation-Assisted Epoxidation of Alkenes	<i>TEM</i>	1D-03: A. Staykov Oxygen Activation on Nanometer-Size Gold Nanoparticles
			1C-03: S. Takeda Operand Structure of Supported Gold Nanoparticulate Catalysts Studied by Environmental Transmission Electron Microscopy	
12:00	1A-04: I. Larrosa Gold(I)-Mediated C-H Activation and Decarboxylation Processes	1B-04: T. M. Bernhardt Surprising Selectivity in the Activation and Oxidation of CH ₄ by Gas Phase Gold and Gold-Palladium Clusters	1C-04: T. Tanaka Catalytic Mediation by Ti-deficient Ti _{1-x} O ₂ Pillars at a Gold Nanoparticle-TiO ₂ Boundary	1D-04: M. Okumura Theoretical Investigation of the Characteristics of Polymer Stabilized Gold Clusters
Lunch (12:20-13:40)				

9/6 (THU) pm				
Time	5F Room A (EMINENCE)	42F Room B (FUJI)	42F Room C (TAKAO)	44F Room D (HARMONY)
13:40	<i>Chair: E. J. M. Hensen</i>	<i>Chair: U. Prüße</i>	<i>Chair: T. M. Bernhardt</i>	<i>Chair: M. A. Carpenter</i>
	1A-TL2 : Kohmei Halada (Natl. Inst. Mat. Sci., Japan) GENSO-SENRYAKU (Science and Technology for Strategic Elements) for Sustainable Resource Use	1B-KL4: Laura Prati (Univ. of Milan, Italy) Gold Catalyzed Liquid Phase Oxidation: The Active Role of the Solvent	1C-KL5: Jason S. McPherson (Mintek, South Africa) Current and Potential Commercial Applications of Gold Catalysts	1D-KL6: Michael J. Natan (Cabot Security Materials Inc., USA) Optimizing the Antenna for Nanoparticle SERS
14:20	<i>Synthesis of Fine Chemicals (continued)</i>	<i>Selective Oxidation in Liquid Phase</i>	<i>Low Temperature CO Oxidation & its Application</i>	<i>Optical Application</i>
	1A-05: T. Mitsudome Selective Deoxygenation of Various Oxygen-containing Organic Compounds Using Supported Gold Nanoparticles	1B-05: N. Toshima Crown Jewel Catalysts: A Series of Novel Metal Nanoclusters with Catalytically Highly Active Gold Atoms at Top Positions	1C-05: H. Miyamura Powerful Organic Transformations Catalyzed by Polymer Incarcerated Gold and Multimetallic Nanoclusters	1D-05: C. Kojima Photothermogenic Properties of Different-Sized Gold Nanoparticles
14:40	1A-06: M. Sankar Supported Bimetallic Nanoalloys for the Direct One-Pot Reductive N- Alkylation of Nitroarenes by Using Alcohols	1B-06: L. M. Rossi Finding the Optimum Composition of AuPd Core- Shell Nanoparticle Catalysts	1C-06: Y. Tang Sub-5nm, Au-Pd Bimetallic Nanoparticles with Variable Surface Composition and Catalytic Activity	1D-06: K. Okamoto Surface Plasmon Enhanced Light Emissions and Absorptions Using Gold
Break (15:00-15:20)				
15:20	<i>Chair: M. Sankar</i>	<i>Selective Hydrogenation</i>	<i>Chair: M. C. Kung</i>	<i>Chair: Y. Niidome</i>
	1A-07: R. N. Dhital Anomalous Efficacy of Bimetallic Au/Pd Nanoclusters in C-X Bond Activation	<i>Chair: J. H. Johnston</i> 1B-07: T. Amaya Gold Nanoparticles Catalyst with Redox-Active Polyaniline Sulfonic Acid	1C-07: Z. Hao Low-temperature Catalytic Oxidation Behaviors over Supported Gold Catalysts	1D-07I: A. Monkawa Localized Surface Plasmon Resonance Sensor with High Sensitivity and Wide Dynamic Range for Volatile Organic Compounds
15:40	<i>Selective Oxidation</i>	1B-08: Y. Kubo Boronate Self-Assemblies with Embedded Au Nanoparticles that Serve as Chemoselective Catalyst for the Reduction of Nitroaromatic Compound	1C-08I: C. Qi An Investigation into Phosphate Doped Au/Alumina for Low Temperature CO Oxidation	1D-08: M. A. Carpenter Hyperspectral Plasmonics Based Harsh Environment Compatible Chemical Sensors
16:00	1A-09: E. J. M. Hensen Unravelling the Synergy between Chromium- Hydrotalcites and Gold Nanoparticles in the Aerobic Oxidation of Alcohols	1B-09: M. M. Nigra Understanding Gold Nanoparticle Reduction Catalysis Using Organic Ligands	1C-09I: M. Ikegami Combination of Gold Catalyst Filter with Air Plasma for Longer Life Air Purification	1D-09: T. Iida Analysis of Enhanced Light Scattering from High Density Assembly of Gold Nanoparticles Fixed on Spherical Surface
43F Room E & P (STAR LIGHT & MOON LIGHT)				
16:30-19:00 Poster Session 1				

Program Time Table

9/7 (FRI) am				
Time	5F Room A (EMINENCE)			
9:00	Chair: <i>S. T. Oyama</i> 2A-PL: Hans-Joachim Freund (Fritz Haber Inst. of the Max Planck Soc., Germany) The Surface Science of Supported Au Nanoparticles and its Relation to Catalysis			
Break (10:00-10:20)				
10:20	5F Room A (EMINENCE)	42F Room B (FUJI)	42F Room C (TAKAO)	44F Room D (HARMONY)
	Chairs: <i>M. H. Huang</i> <i>E. R. T. Tiekink</i>	Chairs: <i>B. C. Gates</i> <i>Z. Hao</i>	Chairs: <i>D. Astruc</i> <i>J. Edwards</i>	Chairs: <i>A. Muramatsu</i> <i>T. A. Nijhuis</i>
	2A-TL3: Antonio M. Echavarren (Inst. of Chem. Research of Catalonia, Spain) Molecular Complexity through Gold Catalysis	2B-KL7: Hannu Häkkinen (Univ. of Jyväskylä, Finland) Nanoscale Gold in Passive and Active Forms: Lessons and Prospects from Computational Studies	2C-KL8: David A. Giljohann (AuraSense Therapeutics LLC, USA) The Use of Gold Nanoparticles in Oligonucleotide Therapy	2D-KL9: Peter Bishop (Johnson Matthey Tech. Centre, UK) Gold Nanoparticles and their Use in Functional Films and Catalytic Transformations
11:00	<i>Selective Oxidation</i>	<i>Mechanism & Active Sites</i>	<i>Biochemistry & Medical Application</i>	<i>Composites & Novel Materials</i>
	2A-01: S. T. Oyama Platinum-Like Catalytic Behavior of Au(+1)	2B-01: R. J. Behm Oxidation Reactions on Oxide Supported Au Catalysts – The Crucial Role of Reaction Conditions and Catalyst Support	2C-01: X. Jiang Utilizing Gold Nanoparticles to Fight Against Multidrug-Resistant Bacteria	2D-01: J. H. Johnston Novel Composites of Nanogold with Natural Fibres and Polymer Substrates
11:20	2A-02: H. H. Kung Role of Oxo-titanium-Au Interface in Selective Oxidation of Propane	2B-02: C.-Y. Mou Control of the Size of Supported Gold Nanoparticles by Tuning the Metal-Support Interactions	2C-02: C. Gautier Gold-(Silver)-Silica Core-(Shell)-Shell Nanorods – The New Biolabel Generation	2D-02: L. Bertry Design of Core-Shell Gold-Silica Nanostructures Doped with Rare Earth Ions for Use in Optical Fibers.
11:40	2A-03: H. Sakurai Novel Preparation Method of Colloidal Gold and Active Au/oxide Catalysts Using Gold Acetate as a Cl-free Precursor	2B-03: A. Wang Direct Evidences for Redox Mechanism of Low-Temperature CO Oxidation over Au/FeO _x Catalyst	2C-03: J. Boczkowski Attaching Gold(Au) Nanoparticles (NP) to Titanium Dioxide (TiO ₂) NP Modulate their Proinflammatory Effects in Human Cells	2D-03: F. Dufour Study of Molecules Adsorption on Gold Clusters for the Design of TiO ₂ -Gold Nanocomposites Photocatalyst. A Theoretical and an Experimental Approach
12:00	2A-04: M. S. Scurrill CO Removal from Hydrogen and an Assessment of the Role for Gold-Based Catalysts	2B-04: C. Louis Promoting Effect of Au on CO Oxidation Kinetics in Au-Pt Nanoparticles Supported on SiO ₂ : an Electronic Effect?	<i>Nanorods & Wires</i> 2C-04: Y. Niidome Spectroscopic Properties and Chemical Oxidation of Gold-Silver Core-Shell Nanorods	2D-04: T. Sawada Development of Molecular Superstructure Composed of Gold Nanoparticle and Filamentous Virus
Lunch (12:20-13:40)				

9/7 (FRI) pm				
Time	5F Room A (EMINENCE)	42F Room B (FUJI)	42F Room C (TAKAO)	44F Room D (HARMONY)
13:40	<i>Chair: C.-Y. Mou</i>	<i>Chair: R. J. Behm</i>	<i>Chair: M. Boronat</i>	<i>Chair: Y. Kubo</i>
	2A-TL4: Ross A. Hatton (Molecular Solar Ltd., UK) Nano-Structured Gold Window Electrodes and their Application in Organic Photovoltaics	2B-KL10: Tao Zhang (Dalian Inst. of Chem. Phys., China) Design, Synthesis and Structure Changes of Au-Ag and Au-Cu Nanoparticle Catalysts	2C-KL11: Uzi Landman (Georgia Inst. of Tech., USA) Small is Different: From Gold Nanowires to Nanocatalysis	2D-KL12: Jonathan G. Heddle (RIKEN, Japan) A Gold Nanoparticle-Catalysed Artificial Protein Capsid
14:20	<i>Selective Oxidation (continued)</i>	<i>Mechanism & Active Sites (continued)</i>	<i>Cluster Sciences</i>	<i>Self Assembly Systems</i>
	2A-05: J. Edwards Preparation of Ultra Low Loaded Au Catalysts for Oxidation Reactions	2B-05: K. Fukui Reactivity of Positively Charged Au Species Stabilized at Surface Oxygen Vacancy of CeO ₂ (111) for Water-Gas-Shift Reaction	2C-05: Y. Shichibu Non-Spherical Gold Clusters Exhibit Intense Absorption Bands: Correlation between Geometric and Electronic Structures	2D-05: S. A. E. Boyer Interfaces of Gold Nanoparticles / Block Copolymers Hybrids: Interactions with Carbon Dioxide, Colloidal Solution and Catalyst System
14:40	<i>Selective Hydrogenation</i>	2B-06: F. Wang Electron Transfer at the Interface of Gold Nanoparticles and Partially Reduced MoOx and Catalytic Applications	2C-06: I. O. Koshevoy Highly Luminescent Gold(I)-containing Alkynyl Clusters: Ligand Effect on Structural and Photophysical Properties	2D-06: K. Miki Large-Area Gold Nanoparticle 2D-Arrays for Plasmonic Applications
Break (15:00-15:20)				
15:20	<i>Chair: X. Zhang</i>	<i>Chair: S. Kameoka</i>	<i>Chair: M. T. M. Koper</i>	<i>Colloid Science</i>
	2A-07: B.-Q. Xu Effects of Stabilizer Residues on the Property and Catalysis of Au Nanoparticles	2B-07: Q. Ge CO Oxidation Catalyzed by Oxide-Supported Au ₂₅ (SR) ₁₈ Nanoclusters and Identification of Perimeter Sites as Active Centers	2C-07: S. Takakusagi Polarization Dependent Total-Reflection Fluorescence (PTRF) XAFS Study of Au ₁₀ Clusters Deposited on TiO ₂ (110) Surface	<i>Chair: W. Shen</i> 2D-07: G.-R. Zhang Five-Fold Twinned Sub-20 nm Au Nanoparticles from Seed-Mediated Growth Approach and Their Possible Formation Mechanism
15:40	2A-08: F. Cárdenas-Lizana New Opportunities for Au Catalysts in Hydrogen Mediated Reactions	2B-08: J. H. Huang The Optimum Size of Au in Catalytic Reactions over Au	<i>Gold Clusters</i> 2C-08: A. Katz Coordinatively Unsaturated Gold Clusters Bound With Calixarene Ligands	2D-08: M. Sakamoto Size Control of Gold Nanoparticles Using Rigid Bidentate Ligands
16:00	2A-09: J. Ohyama Hydrogenation of 5-Hydroxymethyl-2-furaldehyde over Supported Gold Nanoparticles	2B-09: H. Y. Zhu Mechanism of Visible Light Photocatalysts of Gold Nanoparticles (Au NPs) for Organic Synthesis	2C-09: M. A. López-Quintela Catalytic, Electrocatalytic and Photocatalytic Properties of Sub-nanometric Atomic Quantum Clusters	2D-09: L. Rodríguez Applications of 2D and 3D Phosphine-gold Complexes
43F Room E & P (STAR LIGHT & MOON LIGHT)				
16:30-19:00				
Poster Session 2				
5F Room A (EMINENCE)				
Banquet (19:30-21:30)				

Program Time Table

9/8 (SAT) am				
Time	5F Room A (EMINENCE)			
9:00	Chair: <i>M. Maeda</i> 3A-PL: Vincent M. Rotello (Univ. of Massachusetts, USA) Gold Nanoparticles in Biomedicine: Delivery, Sensing and Imaging			
Break (10:00-10:20)				
10:20	5F Room A (EMINENCE)	42F Room B (FUJI)	42F Room C (TAKAO)	43F Room E (STAR LIGHT)
	Chairs: <i>Y. Iizuka</i> <i>M. Okumura</i>	Chairs: <i>S. A. E. Boyer</i> <i>T. Yokoyama</i>	Chairs: <i>A. Katz</i> <i>T. Tsukuda</i>	Chairs: <i>C. Gautier</i> <i>P. J. Miedziak</i>
	JST CREST Symposium	3B-KL13:	3C-KL14:	3E-KL15:
	Shigeru Ishimasa (JST, Japan) Opening Remarks	Misao Itouga / Seiji Nakatsuka (RIKEN, Japan / DOWA HOLDINGS CO.,LTD, Japan) Sustainable Gold Adsorbent Material	Toshiharu Teranishi (Kyoto Univ., Japan) Nanoplasmonics in Polyhedral Gold Nanoparticle Assemblies	Didier Astruc (Univ. of Bordeaux I, France) Engineering of Gold Nanoparticles towards Biomedical Applications
10:25	3A-JST1:			
	Masatake Haruta (Tokyo Metropolitan Univ., Japan) Introductory Talk			
10:50	3A-JST2 :			
	John T. Yates Jr (Univ. of Virginia, USA) The Perimeter-Dual-Site Concept on Nano-Au/TiO ₂ Catalysts- Oxidation of CO and Ethylene	<i>Recover & Refining</i>	<i>Optical Application</i>	<i>Nanoparticles & Wires</i>
11:00		3B-01I : B. Pangen Recovery and Refining of Gold by Using Some Cross-linked Polysaccharides	3C-01: M. Futamata Flocculation of Gold Nanoparticles Using Cationic and Neutral Rhodamine 6G Molecules towards Single Molecule Raman Spectroscopy	3E-01: J. R. G. Navarro Design, Synthesis and Spectroscopy of Fluorescent Hybrid Gold Nanoparticles (Spheres, Bipyramids, Stars)
11:20	3A-JST3:	3B-02: S. J. Santosa The Responsible Mechanism of Gold Accumulation and Deposition on Peat Soil Humin	3C-02: K. Fujisawa Structures of Highly Luminescent Au(I)-Ag(I) Polynuclear Complexes: Bridged Anions Effect on the Supramolecular Construction	3E-02: K. Matsuda Organic Functional Molecule and Noble Metal Nanoparticles in Optoelectronics
	Bruce C. Gates (Univ. of California, Davis, USA) Atomically Dispersed Zeolite-supported Gold Catalysts for CO Oxidation: Characterization by Spectroscopy and Atomic-Resolution Electron Microscopy	<i>Supramolecule Chemistry</i>	3C-03: T. Torimoto Plasmonic Light-trapping for Semiconductor Photocatalysts Using SiO ₂ -coated Au Particles	3E-03: M. H. Huang Shape-Controlled Synthesis of Gold Nanocrystals and Au-Directed Formation of Core-Shell Heterostructures
11:40		3B-03: D. B. Leznoff Properties of Coordination Polymer Materials Based on Cyanoaurate(III) Building Blocks		
11:50	3A-JST4:			
	Tadahiro Fujitani (Adv. Ind. Sci. Tech., Japan) CO Oxidation over Au/TiO ₂ Model Catalyst	3B-04:	3C-04: S. Sarina Contribution of Light Irradiation to Reduction of Activation Energy in Gold Nanoparticle Photocatalyzed Reactions	<i>Alloy & Metallurgy</i>
12:00		E. R. T. Tiekink Supramolecular Synthesis Based on Gold...π(aryl) Interactions		3E-04I: M. Eisenbart Processing and Properties of 18 karat Au-based Bulk Metallic Glasses for Jewelry Technology
12:10	3A-JST5:			
	Yoshiaki Kido (Ritsumeikan Univ., Japan) The Mechanism of Emerging Catalytic Activity of Gold Nano-Clusters on TiO ₂ (110) in CO Oxidation			
12:20		Lunch (12:20-13:40)		

9/8 (SAT) pm				
Time	5F Room A (EMINENCE)	42F Room B (FUJI)	42F Room C (TAKAO)	43F Room E (STAR LIGHT)
13:40	Chair: <i>N. Toshima</i> JST CREST Symposium (continued) 3A-JST6: Itsuo Toshima (Former Representative of Asian Office of WGC, Japan) Looking at the World through Gold	Chair: <i>M.A. López-Quintela</i> 3B-KL16: Yi Ding (Shandong Univ., China) Catalysis and Electrocatalysis by Nanoporous Gold	Chair: <i>D. B. Leznoff</i> 3C-05: K. Isozaki Enhanced Catalysis of Self- Assembled Monolayer- Capped Gold Nanoparticle 2D-arrays	Chair: <i>B.-Q. Xu</i> Catalyst Preparation & Characterization 3E-05: A. Muramatsu Liquid-phase Reductive Deposition as a Novel Preparation Method of Supported Bimetallic Noble Metal Catalysts
14:00			3C-06: A. Taketoshi Aerobic Oxidation of Sulfides to Sulfoxides over Au/Manganese Oxides	3E-06: P. J. Miedziak Physical Grinding of Metal Acetates to Form Alloyed Bimetallic Catalysts
14:10	Chair: <i>H. Sakurai</i> 3A-JST7: Makoto Tokunaga (Kyushu Univ., Japan) Organic Transformations by Metal Oxide Supported Heterogeneous Gold Catalysts	<i>Electrocatalysis</i> 3B-07: M. T. M. Koper Electrocatalysis of the Oxidation of CO and Alcohols on Gold	<i>Gold Scientist Prize</i> 3C-07: A. Kogo Photocurrents of Gold Cluster-Modified TiO ₂ Enhanced by Gold Nanoparticles	3E-07: W. Shen Restructuring of Gold Nanoparticle on Ceria Nanorods
14:20	3A-JST8: David A. Giljohann (AuraSense Therapeutics LLC, USA) Starting a Company- The AuraSense Therapeutics Story	<i>Synthesis of H₂O₂</i> 3B-08: T. Ishihara Au-Pd Nano Colloid for Direct Synthesis of H ₂ O ₂ from H ₂ and O ₂	3C-08: X. Zhang Gold Confined in CNTs for Highly Selective Hydrogenation Reactions	3E-08: Z. Zhao Highly Efficient Catalysts of Three-Dimensionally Ordered Macroporous Oxides-Supported Gold Nanoparticles for Soot Combustion
Break (15:00-15:20)				
15:20	5F Room A (EMINENCE) <i>D. Thompson Memorial</i>			
	Chair: <i>M. Haruta</i> 3A-ML1: Catherine Louis (Pierre and Marie Curie Univ., France) Gold Nanoparticles in the Past: Their First Uses before the Nanotechnology Era			
16:00	Award & Closing Ceremony			

參、心得

日本 NIMS 研究人員素質很高，大多是日本國內的博士，但都有在國外一流研究機構從事研究的經驗；最重要的是；他們的研究不是跟從而是開創新的方向。NIMS 的主要任務為基礎科學研發、成果的普及與活用、設備設施的共享及培養研究及技術人員，為「新物質創製」及「材料高值化」追求的專業研究機關。該機構也是日本研究機構中很積極推展產學合作、學術交流的研究單位，會談中 NIMS 很歡迎我們的研究生或研究人員申請到日本 NIMS 做研究。

本次參訪 NIMS 行程使我們對於日本在材料領域的研究有更深的瞭解，受益良多，可真不虛此行。期待 NSC-NIMS 可以早日完成科技合作文書簽署，以開展雙方的實質合作的夥伴關係。

肆、建議事項

國內若能集中研究資源補助特定重點科技發展主題，鼓勵新進研究人員進行各項新的研究方向，挑選出具有潛力的研究主題持續補助，並以國際交流方式，鼓勵國內學生獲得博士學位後到日本 NIMS 或日本其他重點科研機構進行博士後研究，不僅有助於解決目前國內博士生過多的情況，亦可提升國內博士的研究素質和國際視野，並見習國外研究團隊(人員)的研究態度和技術方法。