

ACTIVITY REPORT

2013

APPENDIX

List of Publications

Publications Based on Experiments Performed at NSRRC Beamlines

01 A1 SWLS – White X-ray (PRT)

- C. C. Chien, P. Y. Tseng, H. H. Chen, T. E. Hua, S. T. Chen, Y. Y. Chen, W. H. Leng, C. H. Wang, Y. Hwu*(胡宇光), G. C. Yin, K. S. Liang, F. R. Chen, Y. S. Chu, H. I. Yeh, Y. C. Yang, C. S. Yang, G. L. Zhang, J. H. Je, and G. Margaritondo, "Imaging Cells and Sub-cellular Structures with Ultrahigh Resolution Full-field X-ray Microscopy", *Bio-technol. Adv.* **31**, 375 (2013).
- C.-C. Chien, I. M. Kempson, C. L. Wang, H. H. Chen, Y. Hwu, N. Y. Chen, T. K. Lee, K. K.-C. Tsai*(蔡坤志), M.-S. Liu, K.-Y. Chang, C. S. Yang, and G. Margaritondo*, "Complete Microscale Profiling of Tumor Microangiogenesis A Microradiological Methodology Reveals Fundamental Aspects of Tumor Angiogenesis and Yields an Array of Quantitative Parameters for Its Characterization", *Bio-technol. Adv.* **31**, 396 (2013).
- S.-F. Lai, C.-C. Chien, W.-C. Chen*(陳文章), H.-H. Chen, Y.-Y. Chen, C.-L. Wang, Y. Hwu*(胡宇光), C. S. Yang, C. Y. Chen, K. S. Liang, C. Petibois, H.-R. Tan, E.-S. Tok, and G. Margaritondo, "Very Small Photoluminescent Gold Nanoparticles for Multimodality Biomedical Imaging", *Biotechnol. Adv.* **31**, 362 (2013).
- W. S. Lin, Z. J. Jian, H. M. Lin*(林鴻明), L. C. Lai, W. A. Chiou, Y. K. Hwu, S. H. Wu, W. C. Chen, and Y. D. Yao, "Synthesis and Characterization of Iron Nanowires", *J. Chin. Chem. Soc.-Taip.* **60**, 85 (2013).

01B1 SWLS – X-ray Microscopy (PRT)

- W.-C. Chen, Y.-F. Song*(宋艷芳), C.-C. Wang, Y. Liu, D. T. Morris, P. A. Pianetta, J. C. Andrews, H.-C. Wu, and N.-L. Wu*(吳乃立), "Study on the Synthesis-microstructure-performance Relationship of Layered Li-excess Nickel-manganese Oxide as a Li-ion Battery Cathode Prepared by High-temperature Calcination", *J. Mater. Chem. A* **1**, 10847 (2013).
- C. C. Chien, P. Y. Tseng, H. H. Chen, T. E. Hua, S. T. Chen, Y. Y. Chen, W. H. Leng, C. H. Wang, Y. Hwu*(胡宇光), G. C. Yin, K. S. Liang, F. R. Chen, Y. S. Chu, H. I. Yeh, Y. C. Yang, C. S. Yang, G. L. Zhang, J. H. Je, and G. Margaritondo, "Imaging Cells and Sub-cellular Structures with Ultrahigh Resolution Full-field X-ray Microscopy", *Bio-*

technol. Adv. **31**, 375 (2013).

- C.-W. Liao, Y.-S. Lin, K. Chanda, Y.-F. Song, and M. H. Huang*(黃暄益), "Formation of Diverse Supercrystals from Self-assembly of a Variety of Polyhedral Gold Nanocrystals", *J. Am. Chem. Soc.* **135**, 2684 (2013).

01C1 SWLS – EXAFS

- H. M. Chen, C. K. Chen, M. L. Tseng, P. C. Wu, C. M. Chang, L.-C. Cheng, H. W. Huang, T. S. Chan, D.-W. Huang, R.-S. Liu*(劉如熹), and D. P. Tsai*(蔡定平), "Plasmonic ZnO/Ag Embedded Structures as Collecting Layers for Photogenerating Electrons in Solar Hydrogen Generation Photoelectrodes", *Small* **9**, 2926 (2013).
- I.-L. Chen, T.-Y. Chen, C.-C. Hu*(胡啟章), and C.-H. Lee, "Thermal-induced Growth of RuO₂ Nanorods from a Binary Ru-Ti Oxide Composite and Alteration in Supercapacitive Characteristics", *J. Mater. Chem. A* **1**, 2039 (2013).
- P.-K. Chen, N.-C. Lai, C.-H. Ho, Y.-W. Hu, J.-F. Lee, and C.-M. Yang*(楊家銘), "New Synthesis of MCM-48 Nanospheres and Facile Replication to Mesoporous Platinum Nanospheres as Highly Active Electrocatalysts for the Oxygen Reduction Reaction", *Chem. Mater.* **25**, 4269 (2013).
- Y.-C. Chen, T.-F. Hung, C.-W. Hu, C.-Y. Chiang, C.-W. Huang, H.-C. Su, R.-S. Liu*(劉如熹), C.-H. Lee, and C.-C. Chang*(張家欽), "Rutile-type (Ti,Sn)O₂ Nanorods as Efficient Anode Materials Toward Its Lithium Storage Capabilities", *Nanoscale* **5**, 2254 (2013).
- K.-Y. Chiang, T.-Y. Chen*(陳燦耀), C.-H. Lee, T.-L. Lin, M.-K. Wang*(王明光), L.-Y. Jang, J.-F. Lee, "Biogeochemical Reductive Release of Soil Embedded Arsenate Around a Crater Area (Guandu) in Northern Taiwan Using X-ray Absorption Near-edge Spectroscopy", *J. Environ. Sci. - China* **25**, 626 (2013).
- Y.-T. Chiu*(邱盈達), K.-L. Lin, A. T. Wu, W.-L. Jang, C.-L. Dong, and Y.-S. Lai, "Electrorecrystallization of Metal Alloy", *J. Alloy. Compd.* **549**, 190 (2013).
- T.-L. Chou, J.-M. Lee, S.-A. Chen, S.-C. Haw, E. Huang, K.-T. Lu, S.-W. Chen, M.-J. Deng, H. Ishii, N. Hiraokai, C.-M. Lin, K.-D. Tsuei, and J.-M. Chen*(陳錦明), "Pressure and Temperature Dependence of Local Structure and

Electronic Structure of Orthorhombic DyMnO₃", J. Phys. Soc. JPN. **82**, 064708 (2013).

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- W.-Y. Huang, F. Yoshimura, K. Ueda, Y. Shimomura, H.-S. Sheu, T.-S. Chan, H. F. Greer, W. Zhou, S.-F. Hu, R.-S. Liu* (劉如熹), and J. P. Attfield, "Nanosegregation and Neighbor-Cation Control of Photoluminescence in Carbidonitridosilicate Phosphors", Angew. Chem. Int. Edit. **52**, 8102 (2013).
- T.-F. Hung, M.-H. Tu, C.-W. Tsai, C.-J. Chen, R.-S. Liu* (劉如熹), W.-R. Liu, and M.-Y. Lo, "Influence of Pyrolysis Temperature on Oxygen Reduction Reaction Activity of Carbon-incorporating Iron Nitride/ Nitrogen-doped Graphene Nanosheets Catalyst", Int. J. Hydrogen Energ. **38**, 3956 (2013).
- H. Husin, W.-N. Su* (蘇威年), C.-J. Pan, J.-Y. Liu, J. Rick, S.-C. Yang, W.-T. Chuang, H.-S. Sheu, and B.-J. Hwang* (黃炳照), "Pd/NiO Core/shell Nanoparticles on La_{0.02}Na_{0.98}TaO₃ Catalyst for Hydrogen Evolution from Water and Aqueous Methanol Solution", Int. J. Hydrogen Energ. **38**, 13529 (2013).
- S. Kumar*, C. L. Chen, C. L. Dong, Y. K. Ho, J. F. Lee, T. S. Chan, R. Thangavel, T. K. Chen, B. H. Mok, S. M. Rao, and M. K. Wu, "Room Temperature Ferromagnetism in Ni Doped ZnS Nanoparticles", J. Alloy. Compd. **554**, 357 (2013).
- C.-W. Kuo, I. T. Lu, L.-C. Chang, Y.-C. Hsieh, Y.-C. Tseng, P.-W. Wu* (吳樸偉), and J.-F. Lee, "Surface Modification of Commercial PtRu Nanoparticles for Methanol Electro-oxidation", J. Power Sources **240**, 122 (2013).
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- X. Liu, A. Wang, L. Li, T. Zhang, C.-Y. Mou* (牟中原), and J.-F. Lee, "Synthesis of Au-Ag Alloy Nanoparticles Supported on Silica Gel via Galvanic Replacement Reaction", Prog. Nat. Sci. **23**, 317 (2013).
- T. Luo, H. Tian, Z. Guo, G. Zhuang, and C. Jing* (景傳勇), "Fate of Arsenate Adsorbed on Nano-TiO₂ in the Presence of Sulfate Reducing Bacteria", Environ. Sci. Technol. **47**, 10939 (2013).
- P. C. Su, H. S. Chen, T.-Y. Chen, C.-W. Liu, C.-H. Lee, J.-F. Lee, T.-S. Chan, and K. W. Wang* (王冠文), "Enhancement of Electrochemical Properties of Pd/C Catalysts Toward Ethanol Oxidation Reaction in Alkaline Solution through Ni and Au Alloying", Int. J. Hydrogen Energ. **38**, 4474 (2013).
- F. Taufany, C.-J. Pan, F.-J. Lai, H.-L. Chou, L. S. Sarma, J. Rick, J.-M. Lin, J.-F. Lee, M.-T. Tang, and B.-J. Hwang* (黃炳照), "Relating the Composition of Pt_xRu_{100-x} Nanoparticles to Their Structural Aspects and Electrocatalytic Activities in the Methanol Oxidation Reaction", Chem.-Eur. J. **19**, 905 (2013).
- Y.-J. Tu* (涂耀仁), C.-F. You* (游鎮烽), C.-K. Chang, S.-L. Wang, and T.-S. Chan, "Adsorption Behavior of As(III) onto a Copper Ferrite Generated from Printed Circuit Board Industry", Chem. Eng. J. **225**, 433 (2013).
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- W.-C. Wang, S.-Y. Chen, P.-A. Glans, J. Guo, R.-J. Chen, K.-W. Fong, C.-L. Chen, A. Gloter, C.-L. Chang* (張經霖), T.-S. Chan, J.-M. Chen, J.-F. Lee, and C.-L. Dong* (董崇禮), "Towards Understanding the Electronic Structure of Fe-doped CeO₂ Nanoparticles with X-ray Spectroscopy", Phys. Chem. Chem. Phys. **15**, 14701 (2013).
- C.-Y. Wu, Y.-T. Liu, P.-C. Huang, T.-J. M. Luo, C.-H. Lee, Y.-W. Yang, T.-C. Wen, T.-Y. Chen* (陳燦耀), and T.-L. Lin* (林滄浪), "Heterogeneous Junction Engineering on Core-shell Nanocatalysts Boosts the Dye-sensitized Solar Cell", Nanoscale **5**, 9181 (2013).
- T.-H. Yeh, C.-W. Liu, H.-S. Chen, and K.-W. Wang* (王冠文), "Preparation of Carbon-supported PtM (M = Au, Pd, or Cu) Nanorods and Their Application in Oxygen Reduction Reaction", Electrochem. Commun. **31**, 125 (2013).

01C2 SWLS – X-ray Powder Diffraction

- I. Baginskiy, T.-C. Lai, L.-C. Cheng, Y.-C. Chan, K.-Y. Yang, R.-S. Liu* (劉如熹), M. Hsiao* (蕭宏昇), C.-H. Chen, S.-F. Hu, L.-J. Her, and D. P. Tsai* (蔡定平), "Chitosan-modified Stable Colloidal Gold Nanostars for the Photothermolysis of Cancer Cells", J. Phys. Chem. C **117**, 2396 (2013).
- S. J. Blamires, C.-C. Wu, C.-L. Wu, H.-S. Sheu, and I.-M. Tso* (卓逸民), "Uncovering Spider Silk Nanocrystalline

- Variations That Facilitate Wind-induced Mechanical Property Changes*", *Biomacromolecules* **14**, 3484 (2013).
- A.-J. Chen, I.-J. Hsu, W.-Y. Wu, Y.-T. Su, F.-Y. Tsai*(蔡福裕), and C.-Y. Mou*(牟中原), "A Fluorescent Organic Nanotube Assembled from Novel *p*-Phenylene Ethynylene-based Dicationic Amphiphiles", *Langmuir* **29**, 2580 (2013).
 - C. L. Chen*(陳啟亮), C. L. Dong*(董崇禮), Y. K. Ho, C. C. Chang, D. H. Wei, T. S. Chan, J. L. Chen, W. L. Jang, C. C. Hsu, K. Kumar, and M. K. Wu, "Electronic and Atomic Structures of Gasochromic V_2O_5 Films", *EPL-Europhys. Lett.* **101**, 17006 (2013).
 - C. S. Chen*(陳敬勳), Y. T. Lai, T. W. Lai, J. H. Wu, C. H. Chen, J. F. Lee, and H. M. Kao*(高憲明), "Formation of Cu Nanoparticles in SBA-15 Functionalized with Carboxylic Acid Groups and Their Application in the Water-Gas Shift Reaction", *ACS Catalysis* **3**, 667 (2013).
 - M.-S. Chen, S.-H. Wu*(吳溪煌), and W. K. Pang, "Effects of Vanadium Substitution on the Cycling Performance of Olivine Cathode Materials", *J. Power Sources* **241**, 690 (2013).
 - T.-Y. Chen*(陳燦耀), I.-L. Chen, Y.-T. Liu, T.-L. Lin, P.-W. Yang, C.-Y. Wu, C.-C. Hu, T.-J. M. Luo, and C.-H. Lee, "Core-dependent Growth of Platinum Shell Nanocrystals and Their Electrochemical Characteristics for Fuel Cells", *CrystEngComm* **15**, 982 (2013).
 - Y.-C. Chen, T.-F. Hung, C.-W. Hu, C.-Y. Chiang, C.-W. Huang, H.-C. Su, R.-S. Liu*(劉如熹), C.-H. Lee, and C.-C. Chang*(張家欽), "Rutile-type (Ti,Sn) O_2 Nanorods as Efficient Anode Materials Toward Its Lithium Storage Capabilities", *Nanoscale* **5**, 2254 (2013).
 - H.-H. Chiu, M.-C. Shen, C.-C. Wang*(王志傑), G.-H. Lee, and H.-S. Sheu, "Synthesis, Structural Characterization and Thermal Stability of A One-dimensional Chain-like Coordination Polymer, $[Fe(bpno)_2(NCS)_3]$ ", *J. Chin. Chem. Soc.-Taip.* **60**, 719 (2013).
 - P.-C. Chiu, R. Y.-T. Su, J.-Y. Yeh, C.-Y. Yeh, and R. C.-C. Tsiang*(蔣見超), "Synthesis and Optoelectronic Properties of Nanocomposites Comprising of Poly(9,9-dioctylfluorene)-Block-Poly(3-hexylthiophene) Block Copolymer and Graphene Nanosheets", *J. Nanosci. Nanotechnol.* **13**, 3910 (2013).
 - T.-L. Chou, J. Lybeck, T.-S. Chan, Y.-Y. Hsu, G. C. Tewari, E.-L. Rautama, H. Yamauchi, and M. Karppinen*, "Thermoelectric Misfit-layered Cobalt Oxides with Interlayers of Hydroxide and Peroxide Species", *J. Solid State Chem.* **208**, 109 (2013).
 - Y.-C. Chou, C.-Y. Tai, J.-F. Lee, T.-S. Chan, and J.-M. Zen*(曾志明), "A Nanostructured $AuCu_3$ Alloy Electrode for Highly Sensitive Detection of Hydrazine at Low Potential in Neutral Medium", *Electrochim. Acta* **104**, 104 (2013).
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 - Y.-H. Lai*(賴英煌), S.-W. Cheng, S.-W. Chen, J.-W. Chang, C.-J. Su, A.-C. Su, H.-S. Sheu, C.-Y. Mou, and U.-

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 - H.-S. Sheu*(許火順) and Y.-C. Jean, "Water Improve Crystal Quality in Dragline of Cyrtophora Spider", J. Chin. Chem. Soc.-Taip. **60**, 865 (2013).
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 - C.-C. Tsai, W.-T. Chuang*(莊偉綜), Y.-F. Tsai*(蔡祐輔), J.-T. Li, Y.-F. Wu, and C.-C. Liao, "Intra- and Intermolecular Hydrogen Bonds Enhance the Fluoride-responsiveness of Functionalized Glycolipid-based Gelators", J. Mater. Chem. B **1**, 819 (2013).
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 - Y.-H. Wu*(吳宇瀚), K.-C. Hsu, and C.-H. Lee*(李志浩), "Study of Relationships among Synthesis, Microstructure and Mechanical Properties of Lithium Aluminosilicate Glass-ceramics Containing ZnO and MgF₂ by synchrotron XRD and XANES", J. Mater. Sci. **48**, 4427 (2013).
 - C.-H. Yang, T.-T. Chen, W.-T. Tsai*(蔡文達), and B. H. Liu, "In Situ Synchrotron X-ray Diffraction Study on the Improved Dehydrogenation Performance of NaAlH₄-Mg(AlH₄)₂ Mixture", J. Alloy. Compd. **577**, 6 (2013).
 - W. Zheng*(鄭偉), Z. C. Feng*(馮哲川), R. S. Zheng*(鄭瑞生), H. H. Lin, X. Q. Wang, T. S. Chan, L. Y. Jang, and C. W. Liu, "Study of High Indium In_xGa_{1-x}N Alloys with Synchrotron Radiation", Telkommika **11**, 906 (2013).
- ### 03A1 BM – (HF-CGM) Gas Phase/Photoluminescence
- L. Li, L. H. Li*, Y. Chen*, X. J. Dai, P. R. Lamb, B.-M. Cheng, M.-Y. Lin, and X. Liu, "High-quality Boron Nitride Nanoribbons: Unzipping during Nanotube Synthesis", Angew. Chem. Int. Edit. **52**, 4212 (2013).
 - H.-C. Lu*(盧曉琪), Y.-C. Peng, M.-Y. Lin, S.-L. Chou, J.-I. Lo, and B.-M. Cheng*(鄭炳銘), "Photoluminescence of a CVD Diamond Excited with VUV Light from a Synchrotron", Opt. Photon. J. **3**, 25 (2013).
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Spectra of Condensed Methyl Acetate on Cold Astrochemical Dust Analogs, *Astrophys. J.* **778**, 157 (2013).

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- Y.-J. Wu*(吳宇中), H. F. Chen, S.-J. Chuang, and T.-P. Huang, "Far Ultraviolet Absorption Spectra of N_3 and N_2^+ Generated by Electrons Impacting Gaseous N_2 ", *Astrophys. J.* **779**, 40 (2013).

04B1 BM – (Seya) SRCD

- Y.-R. Chen, H.-B. Huang, C.-J. Lo, C.-C. Wang, L.-K. Ho, H.-T. Liu, M.-S. Shiao, T.-H. Lin*(林達顯), and Y.-C. Chen*(陳怡成), "Effect of Alanine Replacement of L17 and F19 on the Aggregation and Neurotoxicity of Arctic-type $A\beta_{40}$ ", *PLoS One* **8**, e61874 (2013).
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05B2 EPU – PEEM

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