

## **Publication List(2016)**

**---Harima---**

**Resonant Inelastic X-ray Scattering Study of Entangled Spin-Orbital Excitations in Superconducting PrFeAsO<sub>0.7</sub>**

**T. Nomura, Y. Harada, H. Niwa, K. Ishii, M. Ishikado, S. Shamoto, and I. Jarrige  
Physical Review B, 94, 035134 (2016)**

**Phonon-Dressed Two-Dimensional Carriers on the ZnO Surface**

**R. Yukawa, K. Ozawa, S. Yamamoto, H. Iwasawa, K. Shimada, E. F. Schwier, K. Yoshimatsu, H. Kumigashira, H. Namatame, M. Taniguchi, and I. Matsuda  
Physical Review B, 94, 165313 (2016)**

**Investigation of Photo-carrier Generation Processes of Organic Solar Cells Using Time Resolved X-ray Photoelectron Spectroscopy**

**T. Sakurai, S. Wang, W. Fu, K. Ozawa, R. Yukawa, S. Yamamoto and I. Matsuda  
Extended Abstracts of the 2016 International Conference on Solid State Devices and Materials (SSDM), 277-278 (2016)**

**軟 X 線分光による Operando 電子状態解析**

**朝倉大輔、細野英司**

**Electrochemistry, 84, 529-533 (2016)**

**Operando Soft X-ray Emission Studies of Lithium-Ion Batteries**

**Daisuke ASAKURA, Eiji HOSONO and Yoshihisa HARADA**

**表面科学 (Journal of the Surface Science Society of Japan), 37, 66-71 (2016)**

**Characterization of Nitrogen Species Incorporated into Graphite using Low Energy Nitrogen Ion Sputtering**

**Hisao Kiuchi, Takahiro Kondo, Masataka Sakurai, Donghui Guo,**

**Junji Nakamura, Hideharu Niwa, Jun Miyawaki, Maki Kawai,**

**Masaharu Oshima and Yoshihisa Harada**

**Physical Chemistry Chemical Physics, 18, 458-465 (2016)**

**Ligancy-Driven Controlling of Covalency and Metallicity in a Ruthenium Two-Dimensional System**

**Satoshi Toyoda, Katsutoshi Fukuda, Koji Horiba, Masaharu Oshima,**

**Kazuhiro Kumagai, Yu Kumagai, Fumiyasu Oba, Yoshiharu Uchimoto, and**

**Eiichiro Matsubara**

**Chemistry of Materials, 28, 5784-5790 (2016)**

**X-ray and Electron Spectroscopy of Water**

**Thomas Fransson, Yoshihisa Harada, Nobuhiro Kosugi, Nicholas A. Besley, Bernd Winter, John J. Rehr, Lars G. M. Pettersson, and Anders Nilsson**  
**Chemical Reviews, 116, 7551-7569 (2016)**

**Lewis Basicity of Nitrogen-Doped Graphite Observed by CO<sub>2</sub> Chemisorption**  
**Hisao Kiuchi, Riku Shibuya, Takahiro Kondo, Junji Nakamura, Hideharu Niwa, Jun Miyawaki, Maki Kawai, Masaharu Oshima and Yoshihisa Harada**  
**Nanoscale Research Letters, 11, 127 (2016)**

**Redox Potential Paradox in Na<sub>x</sub>MO<sub>2</sub> for Sodium-Ion Battery Cathodes**  
**Yusuke Nanba, Tatsumi Iwao, Benoit Mortemard de Boisse, Wenwen Zhao, Eiji Hosono, Daisuke Asakura, Hideharu Niwa, Hisao Kiuchi, Jun Miyawaki, Yoshihisa Harada, Masashi Okubo and Atsuo Yamada**  
**Chemistry of Materials, 28, 1058-1065 (2016)**

**What Determines the Lifetime of Photoexcited Carriers on TiO<sub>2</sub> Surfaces?**  
**Kenichi Ozawa, Susumu Yamamoto, Ryu Yukawa, Roya Liu, Masato Emori, Koki Inoue, Taku Higuchi, Hiroshi Sakama, Kazuhiko Mase, and Iwao Matsuda**  
**The Journal of Physical Chemistry C, 120, 29283-29289 (2016)**

**Capturing Transiently Charged States at the C<sub>60</sub>/TiO<sub>2</sub>(110) Interface by Time-Resolved Soft X-ray Photoelectron Spectroscopy**  
**Kenichi Ozawa, Susumu Yamamoto, Ryu Yukawa, Kazuma Akikubo, Masato Emori, Hiroshi Sakama, Iwao Matsuda**  
**Organic Electronics, 31, 98-103 (2016)**

**Tailoring Photovoltage Response at SrRuO<sub>3</sub>/SrTiO<sub>3</sub> Heterostructures**  
**Ryu Yukawa, Susumu Yamamoto, Kazuma Akikubo, Kaori Takeuchi, Kenichi Ozawa, Hiroshi Kumigashira and Iwao Matsuda**  
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**Observation of Nanoscopic Charge-Transfer Region at Metal/MoS<sub>2</sub> Interface**  
**Ryota Suto, Gunasekaran Venugopal, Keiichiro Tashima, Naoka Nagamura, Koji Horiba, Maki Suemitsu, Masaharu Oshima and Hirokazu Fukidome**  
**Material Research Express, 3, 075004 (2016)**

**Real-Time Observation of Reaction Processes of CO<sub>2</sub> on Cu(997) by Ambient-Pressure X-ray Photoelectron Spectroscopy**  
**Takanori Koitaya, Susumu Yamamoto, Yuichiro Shiozawa, Kaori Takeuchi, Ro-Ya Liu, Kozo Mukai, Shinya Yoshimoto, Kazuma Akikubo, Iwao Matsuda and Jun Yoshinobu**  
**Topics in Catalysis, 59, 526-531 (2016)**

**Intermediate Honeycomb Ordering to Trigger Oxygen Redox Chemistry in Layered Battery Electrode**

**Benoit Mortemard de Boisse, Guandong Liu, Jiangtao Ma, Shin-ichi Nishimura, Sai-Cheong Chung, Hisao Kiuchi, Yoshihisa Harada, Jun Kikkawa, Yoshio Kobayashi, Masashi Okubo and Atsuo Yamada**  
**Nature Communications, 7, 11397 (2016)**

**Hybridization and Electron-Phonon Coupling in Ferroelectric BaTiO<sub>3</sub> Probed by Resonant Inelastic X-ray Scattering**

**Fatale, S.; Moser, S.; Miyawaki, J.; Harada, Y.; Grioni, M.**  
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**Pt-free carbon-based fuel cell catalyst prepared from spherical polyimide for enhanced oxygen diffusion**

**Y. Nabae, S. Nagata, T. Hayakawa, H. Niwa, Y. Harada, M. Oshima, A. Isoda, A. Matsunaga, and K. Tanaka**  
**Sci. Rep. 6, 23276 (1-7) (2016)**

**Electronic Structure of Pt and Pt-Co Nanoparticles with O<sub>2</sub> and O<sub>2</sub>/H<sub>2</sub>O Adsorption Revealed by In Situ XAFS and Hard X-Ray Photoelectron Spectroscopy**

**Yitao Cui, Yoshihisa Harada, Tatsuya Hatanaka, Naoki Nakamura, Masaki Ando, Toshihiko Yoshida, Eiji Ikenaga, Kenji Ishii, Daiju Matsumura, Rui Li, Masaharu Oshima**  
**ECS Transactions, 72, 131-136 (2016)**

**Combined Experimental and Computational Analyses on the Electronic Structure of Alluaudite-type Sodium Iron Sulfate**

**G. Oyama, H. Kiuchi, S. Cheong Chung, Y. Harada, A. Yamada**  
**J. Phys. Chem. C, 120, 23323-23328 (2016)**

**Time-resolved soft X-ray core-level photoemission spectroscopy to 880°C using pulsed laser and synchrotron radiation, and switched heating current**

**T. Abukawa, S. Yamamoto, R. Yukawa, S. Kanzaki, K. Mukojima, I. Matsuda**  
**Surface Science 43, 656, [published online 14 October 2016] (2017)**

**Generation of metallic eg-derived band at Cs/SrTiO<sub>3</sub> interface observed by polarization-dependent photoemission spectroscopy**

**Kazuma Akikubo, Iwao Matsuda, Didier Schmaus, Guillaume Marcaud, Susumu Yamamoto, Ro-Ya Liu, Ryu Yukawa, Mathieu G. Silly, Fausto Sirotti, and Marie D'Angelo**  
**Thin Solid Films 603, 149 (2016)**

**Thickness-dependent physical properties of  $\text{La}_{1/3}\text{Sr}_{2/3}\text{FeO}_3$  thin films grown on  $\text{SrTiO}_3$  (001) and (111) substrates**

**M. Minohara, M. Kitamura, H. Wadati, H. Nakao, R. Kumai, Y. Murakami, and H. Kumigashira**

**J. Appl. Phys. 120, 025303-1-6 (2016)**

**Photoinduced Demagnetization and Insulator-to-Metal Transition in Ferromagnetic Insulating  $\text{BaFeO}_3$  thin films**

**T. Tsuyama, S. Chakraverty, S. Macke, N. Pontius, C. Schussler-Langeheine, H. Y. Hwang, Y. Tokura, and H. Wadati**

**Phys. Rev. Lett. 116, 256402-1-5 (2016)**

**Interface electronic structure at the topological insulator–ferrimagnetic insulator junction**

**Y Kubota, K Murata, J Miyawaki, K Ozawa, M C Onbasli, T Shirasawa, B Feng, Sh Yamamoto, R-Y Liu, S Yamamoto, S K Mahatha, P Sheverdyaeva, P Moras, C A Ross, S Suga, Y Harada, K L Wang and I Matsuda**

**Journal of Physics: Condensed Matter, 29, 5, 055002, (2016)**

**Investigation of the enhanced photocathodic activity of  $\text{La}_5\text{Ti}_2\text{CuS}_5\text{O}_7$  photocathodes in  $\text{H}_2$  evolution by synchrotron radiation nanospectroscopy**

**Enju Sakai, Naoka Nagamura, Jingyuan Liu, Takashi Hisatomi, Taro Yamada, Kazunari Domen and Masaharu Oshima**

**Nanoscale Communication, 45, (2016)**

**Polarization dependence of resonant magneto-optical Kerr effect measured by twotypes of figure-8 undulators**

**Y.Kubota, Sh.Yamamoto, T.Someya, Y.Hirata, K.Takubo, M.Araki, M.Fujisawa, K.Yamamoto, Y.Yokoyama, M.Taguchi, S.Yamamoto, M.Tsunoda, H.Wadati, A.Shin, I.Matsuda**

**Journal of Electron Spectroscopy and Related Phenomena (2016)**

**時間分解軟 X 線光電子分光法：半導体表面における光励起キャリアの実時間観測**

**山本 達、松田 巖**

**表面科学 37, 1, 9-13, (2016)**

**Light and SEM observation of opal phytoliths in the mulberry leaf**

**O. Tsutsui, R. Sakamoto, M. Obayashi, S. Yamakawa, T. Handa, D. Nishio-Hamane and I. Matsuda, Flora, 218, 44-50 (2016)**

**オペランド軟 X 線発光分光によるリチウムイオン電池の研究**

朝倉大輔、細野英司、原田慈久 表面科学, 37, 2, 66-71 (2016)

**Material/element-dependent fluorescence-yield modes on soft X-ray absorption spectroscopy of cathode materials for Li-ion batteries**

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**新型スピントロニクスと悪魔の階段**

和達大樹

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**In situ hard x-ray photoelectron study of O<sub>2</sub> and H<sub>2</sub>O Adsorption on Pt Nanoparticles**

Y.Cui, Y.Harada, E.Ikenaga, R.Li, N.Nakamura, T.Hatanaka, M.Ando, T.Yoshida, G.L.Li, M.Oshima  
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**Direct evidence of metallic bands in a monolayer boron sheet**

Baojie Feng, Jin Zhang, Ro-Ya Liu, Takushi Iimori, Chao Lian, Hui Li, Lan Chen, Kehui Wu, Sheng Meng, Fumio Komori, and Iwao Matsuda  
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**Asymmetric structure of germanene on an Al(111) surface studied by total-reflection high-energy positron diffraction**

Y.Fukaya, I.Matsuda, B.Feng, I.Mochizuki, T.Hyodo, S.Shamoto  
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**Proving Nontrivial Topology of Pure Bismuth by Quantum Confinement**

S.Ito, B.J.Feng, M.Arita, A.Takayama, RY.Liu, T.Someya, WC.Chen, T.Iimori, H.Namatame, M.Taniguchi, CM.Cheng, SJ.Tang, F.Komori, K.Kobayashi, TC.Chiang, I.Matsuda  
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**Resonant Soft X-Ray Scattering Studies of Transition-Metal Oxides**

Hiroki Wadati

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**High-resolution three-dimensional spin- and angle-resolved photoelectron spectrometer using vacuum ultraviolet laser light**

**Koichiro Yaji, Ayumi Harasawa, Kenta Kuroda, Sogen Toyohisa, Mitsuhiro Nakayama, Yukiaki Ishida, Akiko Fukushima, Shuntaro Watanabe, Chuangtian Chen, Fumio Komori and Shik Shin**  
**Rev. Sci. Instrum. 87, 053111 (2016)**

**One-dimensional metallic surface states of Pt-induced atomic nanowires on Ge(0 0 1)**

**Koichiro Yaji, Sunghun Kim, Izumi Mochizuki, Yasuo Takeichi, Yoshiyuki Ohtsubo, Patrick Le Fèvre, François Bertran, Amina Taleb-Ibrahimi, Shik Shin and Fumio Komori**  
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**Coherent control over three-dimensional spin polarization for the spin-orbit coupled surface state of Bi<sub>2</sub>Se<sub>3</sub>**

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**Spin texture in type-II Weyl semimetal WTe<sub>2</sub>**

**Baojie Feng, Yang-Hao Chan, Ya Feng, Ro-Ya Liu, Mei-Yin Chou, Kenta Kuroda, Koichiro Yaji, Ayumi Harasawa, Paolo Moras, Alexei Barinov, Walid Malaeb, Cédric Barette, Takeshi Kondo, Shik Shin, Fumio Komori, Tai-Chang Chiang, Youguo Shi, and Iwao Matsuda**  
**Phys. Rev. B 94, 165162 (2016)**

**Direct mapping of spin and orbital entangled wave functions under interband spin-orbit coupling of giant Rashba spin-split surface states**

**Ryo Noguchi, Kenta Kuroda, K. Yaji, K. Kobayashi, M. Sakano, A. Harasawa, Takeshi Kondo, F. Komori, and S. Shin**  
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**Topologically Entangled Rashba-Split Shockley States on the Surface of Grey Arsenic**

**Peng Zhang, J.-Z. Ma, Y. Ishida, L.-X. Zhao, Q.-N. Xu, B.-Q. Lv, K. Yaji, G.-F. Chen, H.-M. Weng, X. Dai, Z. Fang, X.-Q. Chen, L. Fu, T. Qian, H. Ding, and S. Shin**  
**Phys. Rev. Lett. 118, 046802 (2017)**

**Spin-dependent quantum interference in photoemission process from spin-orbit coupled states**

**Koichiro Yaji, Kenta Kuroda, Sogen Toyohisa, Ayumi Harasawa, Yukiaki Ishida, Shuntaro Watanabe, Chuangtian Chen, Katsuyoshi Kobayashi, Fumio Komori & Shik Shin**

**Nature Communications 8, 14588 (2017)**

**Observation of spin-polarized bands and domain-dependent Fermi arcs in polar Weyl semimetal MoTe<sub>2</sub>**

**M. Sakano, M. S. Bahramy, H. Tsuji, I. Araya, K. Ikeura, H. Sakai, S. Ishiwata, K. Yaji, K. Kuroda, A. Harasawa, S. Shin, and K. Ishizaka**

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