Ryan Lacdao Arevalo

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Education

Ph.D. Quantum Engineering Design, Osaka University, Japan, 2015
- Nanotechnology Summer School, Karlsruhe Institute of Tech., Germany, 2014
- Junior Research Fellowship, University College London, U.K., 2013

Master of Engineering, Osaka University, Japan, 2012
Master of Science in Physics, De La Salle University, 2010
BSE Physics & Technology (Magna Cum Laude), Philippine Normal University, 2006

Research Interests

Computational Catalysis / Materials Modelling and Simulation
Methane Activation, Carbon Dioxide Conversion, Water Splitting, Electrochemical Reactions for Energy Conversion

Work Experience

De La Salle University, Manila, Philippines
- Associate Professorial Lecturer (2015-2016, 2020-present)

Department of Science and Technology, Philippines
- Balik Scientist (2019–2020), Host Institution: University of San Carlos, Cebu

National Institute of Technology, Akashi College, Japan
- Specially-Appointed Assistant Professor (2016–2019)

Philippine Normal University, Manila, Philippines
- Deputy Dean, College of Flexible Learning and e-PNU (Jan.–Jul. 2016)
- Physics Faculty (2006–2016; on study leave: 2011–2015)

Scholarships / Grants (Selected)

Murata Science Foundation, Travel Grant to Washington D.C., U.S.A., 2017
Robert Bosch Stiftung, Summer School in Germany, 2014
Thomas Young Centre Junior Research Fellowship, UCL, London, U.K., 2013
Marubun Research Promotion Foundation, Travel Grant to Cambridge, U.K., 2013
Monbukagakusho Scholarships, 2010–2012 (Master's Degree), 2012–2015 (Doctorate)

Awards (Selected)

Research Citations Award, Philippine Normal University, 2016
Outstanding Faculty Award, Faculty of Sci. Tech. Math., Phil. Normal Univ., 2016

Professional Organizations

National Research Council of the Philippines, Member (2020-present)
Royal Society of Chemistry, Member (2019-present), Associate Member (2013-2019)
The Physical Society of Japan, Member (2016-2018)
American Physical Society, Member (2011-2017)

Collaborators

Hideaki Kasai, National Institute of Technology; Osaka University
Hiroshi Nakanishi, National Institute of Technology; Osaka Univ.; Univ. of Tokyo
Hiroshi Kitagawa, Kyoto University
Michail Stamatakis, University College London
Elod Gyenge, The University of British Columbia
Mary Clare Escano, University of Fukui
Allan Abraham Padama, University of the Philippines, Los Banos
Koichiro Asazawa, Daihatsu Motors Ltd.

License

Professional Teacher, Licensure Examination for Teachers, 2006, Rating: 88.20%

PUBLICATIONS

Refereed ISI-Indexed Journals

1. R.L. Arevalo, S.M. Aspera, R.E.S. Otadoy, H. Nakanishi, H. Kasai, *Adsorption of CH_4 and SO_2 on unsupported $Pd_{1-x}M_xO(101)$*, Catalysis Letters 150 (2020) 1870.
2. R.L. Arevalo, S.M. Aspera, H. Nakanishi, *Sulfation of a PdO(101) methane oxidation catalyst: Mechanism revealed by first principles calculations*, Catalysis Science & Technology 9 (2019) 232.
3. R.L. Arevalo, S.M. Aspera, H. Nakanishi, H. Kasai, S. Yamaguchi, K. Asazawa, *Adsorption of carbohydrazide on Au(111) and $Au_3Ni(111)$ surfaces*, Catalysis Letters 148 (2018) 1073.
4. R.L. Arevalo, S.M. Aspera, M.C.S. Escaño, H. Nakanishi, H. Kasai, *Tuning methane decomposition on stepped Ni surface: Role of subsurface atoms in catalyst design*, Scientific Reports 7 (2017) 13963.
5. R.L. Arevalo, S.M. Aspera, M.C.S. Escaño, H. Nakanishi, H. Kasai, *First principles study of methane decomposition on B5 step-edge type site of Ru surface*, Journal of Physics: Condensed Matter 29 (2017) 18400.
6. R.L. Arevalo, S.M. Aspera, M.C.S. Escaño, H. Nakanishi, H. Kasai, *Ru-catalyzed steam methane reforming: Mechanistic study from first principles calculations*, ACS Omega 2 (2017) 1295.
7. R.L. Arevalo, M.C.S. Escaño, H. Kasai, *First-principles study of nitric oxide oxidation on Pt(111) versus Pt overlayer on 3d transition metals,* Journal of Vacuum Science and Technology A 33 (2015) 021402.
8. R.L. Arevalo, K. Oka, H. Nakanishi, H. Kasai, H. Maekawa, K. Osumi, N. Shimazaki, *Oxidation of NO on Pt/M (M = Pt, Co, Fe, Mn): A first-principles density functional theory*, Catalysis Science and Technology 5 (2015) 882.
9. R.L. Arevalo, M.C.S. Escaño, H. Kasai, *Mechanistic insight into the Au-3d metal alloy-catalyzed borohydride electro-oxidation: From electronic properties to thermodynamics,* ACS Catalysis 3 (2013) 3031.
10. R.L. Arevalo, M.C.S. Escaño, H. Kasai, *Computational mechanistic study of borohydride electrochemical oxidation on $Au_3Ni(111)$*, The Journal of Physical Chemistry C 117 (2013) 3818.
11. R.L. Arevalo, M.C.S. Escaño, A.Y-S. Wang, H. Kasai, *Structure and stability of borohydride on Au(111) and Au_3M (M = Cr, Mn, Fe, Co, Ni)*, Dalton Transactions 42 (2013) 770.
12. R.L. Arevalo, H. Kishi, A.A.B. Padama, J.L.V. Moreno, H. Kasai, *Substrate dependence of Pt_4 electronic properties*, Journal of Physics: Condensed Matter 25 (2013) 222001. *(IOP Select Article)*
13. R.L. Arevalo, M.C.S. Escaño, E. Gyenge, H. Kasai, *A theoretical study of the structure and stability of borohydride on 3d transition metals*, Surface Science 606 (2012) 1954.
14. R.L. Arevalo, M.C.S. Escaño, H. Kasai, *First principles study on the adsorption and dehydrogenation of borohydride on Mn(111)*, e-Journal of Surface Science and Nanotechnology 9 (2011) 257.
15. R.L. Arevalo, R.F. Pobre, *DFT and cluster model investigation on the adhesion of polyethylene terephthalate on metals*, e-Journal of Surface Science and Nanotechnology 9 (2011) 251.
16. S.M. Aspera, R.L. Arevalo, H. Nakanishi, H. Kasai, S. Sekine, H. Kawai, *Vanadium doped Polyoxometalate: Induced active sites and increased hydrogen adsorption*, Journal of Physics: Condensed Matter 32 (2020) 195001.
17. S.M. Aspera, R.L. Arevalo, H. Nakanishi, H. Kasai, *First principles study of surface stability and segregation of PdRuRh ternary metal alloy system*, Surface Science 671 (2018) 51.
18. S.M. Aspera, R.L. Arevalo, K. Shimizu, R. Kishida, K. Kojima, N.H. Linh, H. Nakanishi, H. Kasai, *First principles calculation of transition metal binary alloys: Phase stability and surface effect*, Journal of Electronic Materials 46 (2017) 3776.
19. J.L.V. Moreno, R.L. Arevalo, M.C.S. Escano, A.A.B. Padama, H. Kasai, *A theoretical study on the adsorption of CO_2 on CuO(110) surface*, Journal of Physical Society of Japan 84 (2015) 015003.
20. M.C.S. Escano, R.L. Arevalo, E. Gyenge, H. Kasai, *Electrocatalysis of borohydride: a review of density functional theory approach combined with experimental*

verification, Journal of Physics: Condensed Matter 26 (2014) 353001.

21. M.C.S. Escaño, R.L. Arevalo, E. Gyenge, H. Kasai, *First-principles study of borohydride adsorption properties on osmium nanoparticles and surfaces: Understanding facet, size effects and local sites*, Catalysis Science & Technology 4 (2014) 1301.
22. M.C.S. Escaño, R.L. Arevalo, E. Gyenge, H. Kasai, *Water co-adsorption and electric field effects on borohydride structures on Os(111) by first-principles calculations*, Journal of Alloys and Compounds 580 (2013) S6.
23. B. Chantaramolee, S.M. Aspera, R.L. Arevalo, E.F. Arguelles, R. Kishida, A.A.B. Padama, H. Kasai, H. Nakanishi, *Surface compositions of Pt-Pd/Pd(111) alloys in the presence of O and OH during oxygen reduction reaction: A first principles study*, Journal of the Physical Society of Japan 88 (2019) 044820.
24. R. Kishida, A.G. Saputro, R.L. Arevalo, H. Kasai, *Effects of introduction of α-carboxylate, N-methyl, and N-formyl groups on intramolecular cyclization of o-quinone amines: Density functional theory-based study*, International Journal of Quantum Chemistry 7 (2017) 23.
25. H. Kishi, A.A.B. Padama, R.L. Arevalo, J.L.V. Moreno, H. Kasai, M. Taniguchi, M. Uenishi, H. Tanaka, Y. Nishihata, *A theoretical study of the reactivity of Cu_2O(111) surfaces: the case of NO dissociation*, Journal of Physics: Condensed Matter 24 (2012) 262001. (*IOP Select Article*)
26. A.A.B. Padama, H. Kishi, R.L. Arevalo, J.L.V. Moreno, H. Kasai, M. Taniguchi, M. Uenishi, H. Tanaka, Y. Nishihata, *NO dissociation on Cu(111) and Cu_2O(111) surfaces: a density functional theory based study*, Journal of Physics: Condensed Matter 24 (2012) 175005.
27. M.C.S. Escaño, E. Gyenge, R.L. Arevalo, H. Kasai, *Reactivity descriptor for borohydride interaction with metal surfaces*, The Journal of Physical Chemistry C 115 (2011) 19883.
28. R. Kishida, S. Ito, M. Sugumaran, R.L. Arevalo, H. Nakanishi, H. Kasai, *Density functional theory-based calculation shed new light on the bizarre addition of cysteine thiol to dopaquinone*, International Journal of Molecular Sciences 22 (2021) 1373.
29. R. Kishida, H. Kasai, S.M. Aspera, R.L. Arevalo, H. Nakanishi, *Branching reaction in melanogenesis: The effect of intramolecular cyclization on thiol binding*, Journal of Electronic Materials 46 (2017) 3784.
30. R. Kishida, H. Kasai, S.M. Aspera, R.L. Arevalo, H. Nakanishi, *Density functional theory-based first principles calculations of rhododendrol-quinone reactions: Preference to thiol binding over cyclization*, Journal of the Physical Society of Japan 86 (2017) 024804.
31. W.T. Cahyanto, M.C. Escaño, H. Kasai, R.L. Arevalo, *Pt(111)-Alloy Surfaces for Non-Activated OOH Dissociation*, e-Journal of Surface Science and Nanotechnology 9 (2011) 352.
32. T. Wakisaka, K. Kusada, D. Wu, T. Yamamoto, T. Toriyama, S. Matsumura, H. Akiba, O. Yamamuro, K. Ikeda, T. Otomo, N. Palina, Y. Chen, L.S.R. Kumara, C. Song, O. Sakata, W. Xie, M. Koyama, Y. Kubota, S. Kawaguchi, R.L. Arevalo, S.M. Aspera, E.F. Arguelles, H. Nakanishi, H. Kitagawa, *Rational Synthesis for a Noble Metal Carbide*, Journal of the American Chemical Society 142 (2020) 1247.

Refereed Non-ISI-Indexed Journals

1. R.L. Arevalo, *Quantum and atomic scale materials modeling in the Philippines: Status, challenges, and recommendations*, KIMIKA 31 (2020) 56.
2. R.L. Arevalo, M.C.S. Escaño, A.A.B. Padama, H. Kasai, *Adsorbate-induced demagnetization: Borohydride on magnetic substrates*, International Journal of Philippine Science and Technology 9 (2016) 10.
3. R.L. Arevalo, S.M. Aspera, R.E.S. Otadoy, H. Nakanishi, H. Kasai, *Role of water dissociation kinetics on Ni-catalyzed atomic carbon conversion in a steam reforming environment: Which path to take?* Proceedings of the Samahang Pisika ng Pilipinas, 2020.
4. R.L. Arevalo, S.M. Aspera, H. Nakanishi, H. Kasai, *DFT-guided design of catalysts for*

methane activation, AIP Conference Proceedings 2040 (2018) 020004.

5. R.L. Arevalo, R.F. Pobre, *DFT calculation for the bandstructure of rutile SnO_2*, Proceedings of 27th SPP National Physics Congress, 2009.

Patents

1. H. Nakanishi, H. Kasai, R.L. Arevalo, 耐硫黄被毒性を有するメタン浄化触媒 (Sulfur-poisoning resistant methane oxidation catalyst), Application No. 2019-173438 (Pending).
2. H. Nakanishi, H. Kasai, R.L. Arevalo, 耐コーキング作用を有するメタンの活性化触媒 (Methane activation catalyst with anti-coking property), Application No. 2017-129580, Publication No. 2019-010628 (Pending).

Book/Textbook

1. R.L. Arevalo, *General Physics 1*, Diwa Learning Systems Inc., 2016 (ISBN: 978-971-46-1069-9)
2. H. Kasai, A.A.B. Padama, B. Chantaramolee, R.L. Arevalo, *Hydrogen and Hydrogen-Containing Molecules on Metal Surfaces: Towards the Realization of Sustainable Hydrogen Economy*, Springer Nature Singapore Pte Ltd., 2020 (Hardcover ISBN: 978-981-15-6993-7; eBook ISBN: 978-981-15-6994-4)

Conference Abstracts (incomplete list)
*Presenting Author

1. R.L. Arevalo,* H. Nakanishi, S.M. Aspera, H. Kasai, *Sulfation of PdO(101) Methane Oxidation Catalyst: Mechanism Revealed by First Principles Calculations*, Abstracts of the Annual Meeting of the Physical Society of Japan, 2019.
2. R.L. Arevalo,* H. Nakanishi, S.M. Aspera, E.F. Arguelles, V. Khoirunisa, H. Kasai, *Methane decomposition on Ni surface: Towards designing non-coking catalysts for hydrocarbon reforming*, Abstracts of the Autumn Meeting of the Physical Society of Japan, 2018.
3. R.L. Arevalo,* S.M. Aspera, H. Kasai, H. Nakanishi, S. Matsumura, *Methane activation on Ni surface: DFT-based insights into catalyst design*, Abstracts of the 8th Tokyo Conference on Advanced Catalytic Science and Technology, Yokohama, 2018
4. R.L. Arevalo,* S.M. Aspera, H. Nakanishi, H. Kasai, *DFT-guided design of non-coking Ni-based catalysts for methane reforming*, Proceedings of the Japan-Germany Joint Symposium on Advanced Catalytic Materials and Characterization, Munich, June 2018.
5. R.L. Arevalo,* S.M. Aspera, M.C.S. Escaño, H. Nakanishi, H. Kasai, *Tuning methane decomposition on stepped Ni surface: Role of subsurface atoms in catalyst design*, Abstracts of the 73rd Annual Meeting of the Physical Society of Japan, 2018.
6. R.L. Arevalo,* S.M. Aspera, H. Nakanishi, H. Kasai, *How do Ru and Ni surface catalyze the decomposition of methane? New insights for catalyst design*, Abstracts of the 254th American Chemical Society National Meeting and Exposition, Washington DC, Aug. 2017.
7. R.L. Arevalo,* S.M. Aspera, H. Nakanishi, H. Kasai, *How do Ru and Ni surface catalyze the decomposition of methane? New insights for catalyst design*, Proceedings of the UK-Japan Joint Symposium on Nanomaterials, Catalysis, and Hydrogen Research, Canterbury, Jul. 2017.
8. R.L. Arevalo,* S.M. Aspera, H. Nakanishi, H. Kasai, *Catalysis of steam methane reforming: From electronic properties to thermodynamics*, Proceedings of the EMN Croatia Conference, Croatia, May 2017.
9. R.L. Arevalo,* S.M. Aspera, M.C.S. Escano, H. Nakanishi, H. Kasai, *How do Ru and Ni surfaces catalyze the steam reforming of methane?*, Abstracts of the 72nd Annual Meeting of the Physical Society of Japan, 2017.
10. R.L. Arevalo,* H. Kasai, *Rational Catalyst Design Approach to heterogeneous Catalysis: Oxidation of borohydride and nitric oxide*, Abstracts of the Kansai Thin Films and Surface Physics Seminar, 2014
11. R.L. Arevalo, K. Oka, H. Nakanishi, H. Kasai, H. Maekawa, K. Osumi, N. Shimazaki, *NO oxidation on Pt/M (M = Pt, Co, Fe, Mn)*,

Abstracts of the 55th Annual Symposium of the Vacuum Society of Japan, 2014.

12. R.L. Arevalo,* M.C.S. Escaño, H. Kasai, *Adsorbate-Induced Demagnetization: Borohydride on Magnetic Substrates*, Proceedings of the 19th Osaka University – De La Salle University Workshop, 2014
13. R.L. Arevalo,* M.C.S. Escaño, H. Kasai, *First-Principles Mechanistic Insights into the Au-3d Metal Alloy – Catalyzed Borohydride Electro-oxidation*, Proceedings of the International Symposium on Atomically Controlled Fabrication Technology, 2014.
14. R.L. Arevalo,* H. Kasai, *Borohydride oxidation on Au-3d metal alloys: Mechanistic study from first-principles calculations*, Proceedings of the Joint Annual Symposium of the Vacuum Society of Japan and the Surface Science Society of Japan, 2013.
15. R.L. Arevalo,* H. Kasai, *Borohydride oxidation on Au-3d metal alloys: Mechanistic study from first-principles calculations*, Proceedings of the International Symposia on Advancing the Chemical Sciences: Challenges in Chemical Renewable Energy (ISACS12), Cambridge, United Kingdom, 2013.
16. R.L. Arevalo,* M.C.S. Escaño, H. Kasai, *Structure and stability of borohydride on Au(111) and $Au_3M(111)$ (M = Cr, Mn, Fe, Co, Ni) surfaces*, Proceedings of the 53rd Annual Symposium of the Vacuum Society of Japan, Kobe, Japan, 2012.
17. R.L. Arevalo,* M.C.S. Escaño, H. Kasai, *Structure and stability of borohydride on Au(111) and $Au_3M(111)$ (M = Cr, Mn, Fe, Co, Ni) surfaces*, Proceedings of the Fifth International Symposium on Atomically Controlled Fabrication Technology, 2012.
18. R.L. Arevalo,* M.C.S. Escaño, H. Kasai, *Structure and stability of borohydride on Au(111) and $Au_3M(111)$ (M = Cr, Mn, Fe, Co, Ni) surfaces*, Proceedings of the International Symposium on Computics: Quantum Simulation and Design (ISC QSD), 2012.
19. R.L. Arevalo,* M.C.S. Escaño, H. Kasai, *Borohydride adsorption and interaction with OH on Mn(111)*, Proceedings of the International Symposium on Materials Science and Innovation for Sustainable Society (Eco-mates 2011).
20. R.L. Arevalo,* M.C.S. Escaño, H. Kasai, *Interaction of borohydride with 3d transition metals: a DFT study*, Proceedings of the Fourth International Symposium on Atomically Controlled Fabrication Technology, 2011.
21. R.L. Arevalo,* M.C.S. Escaño, H. Kasai, *Borohydride dehydrogenation and interaction with OH on Mn(111)*, Proceedings of the JSMS Symposium on Multiscale Materials Modeling, 2011.
22. S.M. Aspera*, R.L. Arevalo, B. Chantaramolee, H. Nakanishi, H. Kasai, *Ab initio analysis on the capability of PdRuIr ternary alloy as an NO reduction catalyst*, Abstracts of the 76th Annual Meeting of the Physical Society of Japan, 2021.
23. S.M. Aspera*, R.L. Arevalo, H. Nakanishi, H. Kasai, *PdRuIr ternary alloy as an effective NO reduction catalyst: Insights from first principles calculation*, Bulletin of the American Physical Society, APS March Meeting, 2021.
24. B. Chantaramolee*, R.L. Arevalo, S.M. Aspera, H. Nakanishi, H. Kasai, *First principles study of oxygen reduction reaction on Pt*, Abstracts of the 75th Annual Meeting of the Physical Society of Japan, 2020.
25. S.M. Aspera,* R.L. Arevalo, H. Nakanishi, H. Kasai, *On understanding ternary alloys: Third-metal effect of PdRuM (M=Rh,Ir) on NO reduction*, Proceedings of the Japan-Germany Joint Symposium on Advanced Catalytic Materials and Characterization, Munich, June 2018.
26. S.M. Aspera,* R.L. Arevalo, B. Chantaramolee, H. Nakanishi, H. Kasai, *NO reduction on ternary alloy PdRuM (M = Rh, Ir) catalysts using first principles calculations*, Proceedings of the 73rd Annual Meeting of the Physical Society of Japan, 2018.
27. S.M. Aspera,* R.L. Arevalo, B. Chantaramolee, H. Nakanishi, H. Kasai, *PdRuRh Ternary Alloy as NO Reduction Catalyst: A DFT-based First Principles Analysis*, Proceedings of the Physical Society of Japan Autumn Meeting, Sept. 2017.
28. H. Nakanishi, R.L. Arevalo,* S.M. Aspera, H. Kasai, *Computational materials design of virtual noble metals*, Proceedings of the UK-Japan Joint Symposium on

Nanomaterials, Catalysis, and Hydrogen Research, Canterbury, Jul. 2017.

29. S.M. Aspera,* R.L. Arevalo, H. Nakanishi, H. Kasai, *2D materials for fuel cell: Functionalization of graphitic carbon nitride for oxygen reduction reaction (ORR) application*, Proceedings of the UK-Japan Joint Symposium on Nanomaterials, Catalysis, and Hydrogen Research, Canterbury, Jul. 2017.
30. S.M. Aspera,* R.L. Arevalo, H. Nakanishi, H. Kasai, *Surface segregation and stability of PdRuM (M = Rh, Ir, Ni, Ag) ternary metal alloy surfaces through first principles-based studies*, Bulletin of the American Physical Society, APS March Meeting, 2017.
31. S.M. Aspera,* R.L. Arevalo, H. Nakanishi, H. Kasai, *First principles based studies of PdRuM (M=Rh, Ir, Ni, Ag) ternary metal alloy surfaces: Surface segregation and stability*, Proceedings of the 72nd Annual Meeting of the Physical Society of Japan, 2017.
32. H. Nakanishi,* R.L. Arevalo, S.M. Aspera, H. Kasai, *Quantum simulation for the motion of positive-muon in materials and its application for Mu-SR spin state analysis*, Proceedings of the International Workshop on Computational Science, Kanazawa University, 2017.
33. B, Chantaramolee, S.M. Aspera, R.L. Arevalo, E.F. Arguelles, H. Kasai, H. Nakanishi, *Direct formaldehyde dissociation on (111) and (0001) surfaces*, Abstracts of the 76th Annual Meeting of the Physical Society of Japan, 2021.
34. H. Nakanishi, S.M. Aspera, R.L. Arevalo, H. Kasai, *An international graduate school level collaborative program in NIT Akashi on cutting edge research and project developments,* Abstracts of the 14th International Symposium on Advances in Technology Education, Finland, 2021.
35. H. Kasai, R. Kishida, R.L. Arevalo, *Binding mechanism of L-cysteine to dopaquinone investigated by density functional theory-based calculation*, Abstracts of the Annual Meeting of the Japan Society of Vacuum and Surface Science, 2020.
36. R. Fajardo, J. Anthoniappen, R.L. Arevalo, F.M. Ruiz, R.E. Otadoy, F. Buot, *Pyroelectric properties of Zirconium-doped $BaTiO_3$ solid solutions using X-ray diffraction and first principles calculations*, Proceedings of the Samahang Pisika ng Pilipinas, 2020.
37. B. Chantaramolee,* S.M. Aspera, R.L. Arevalo, H. Nakanishi, H. Kasai, *HCHO dissociation on Pt(111) and Rh(111)*, Proceedings of the Physical Society of Japan Autumn Meeting, Sept. 2017.
38. H. Kasai,* R.L. Arevalo, M.C.S Escano, *Surface and interface as a foundation to realizing designer materials*, Proceedings of the Materials Research Society Fall Meeting 2015, Boston, 2015.
39. M.C.S. Escaño,* R.L. Arevalo, H. Kasai, *Differentiating electro-catalytic reaction of hydride with respect to a non-Pt catalyst morphology based on first-principles: extended surfaces versus nanoparticles*, Technical Proceedings of the 2014 Clean Technology Conference and Trade Show, vol. 3, 2014, 380-383. (refereed)
40. H. Nakanishi,* S.M. Aspera, R.L. Arevalo, H. Kasai, *An international graduate-school-level collaborative program in NIT Akashi on cutting edge research and project developments*, 14th International Symposium on Advances in Technology Education, Turku, Finland, Aug. 2020.
41. H. Nakanishi,* C.A. Pelotenia, R.L. Arevalo, S.M. Aspera, H. Kasai, *Sophisticated design of molecular bridge devices*, Proceedings of the Japan-Germany Joint Symposium on Advanced Catalytic Materials and Characterization, Munich, June 2018.
42. J.S. Gueriba,* A.A.B. Padama, R.L. Arevalo, M. David, N. Arboleda, H. Kasai, *A first principles study of hydrogen interaction with Ca decorated SiCNT*, Proceedings of the DLSU Research Congress, vol. 3, 2015. (Refereed)
43. H. Kasai, M.C.S. Escaño, R.L. Arevalo,* *Platinum overlayer on 3d transition metals: Reactivity towards O_2 dissociation and NO oxidation*, Abstracts of the 14th International Conference on Atomic Layer Deposition, 2014
44. H. Kasai,* E.F. Arguelles, R.L. Arevalo, *Yoshimori-Kasai model for heavy Fermion systems*, Proceedings of the Joint Annual Symposium of the Vacuum Society of Japan and the Surface Science Society of Japan, 2013.
45. H. Kasai,* E.F. Arguelles, R.L. Arevalo, *Yoshimori-Kasai model for heavy Fermion systems*, Proceedings of the International

Symposium on Frontiers of Materials Science, Vietnam, 2013.

46. M.C.S. Escaño,* E. Gyenge, R.L. Arevalo, *Changes in borohydride structures with respect to catalyst (Pt vs Os), water co-adsorption and applied electric field*, Proceedings of the Fifth International Symposium on Atomically Controlled Fabrication Technology, 2012.
47. W. Cahyanto,* M.C.S. Escaño, R.L. Arevalo, W.A. Diño, H. Kasai, *Effect of Ru and Mo on PtRuMo alloy catalysts in providing more oxygenated species: A DFT study*, Proceedings of the International Symposium on Materials Science and Innovation for Sustainable Society (Eco-mates 2011).
48. W. Cahyanto,* M.C.S. Escaño, R.L. Arevalo, H. Kasai, *Pt-alloy surface for non-activated OOH dissociation*, Proceedings of the Fourth International Symposium on Atomically Controlled Fabrication Technology, 2011.
49. H. Kasai,* A.A.B. Padama, B. Chantaramolee, R.L. Arevalo, S.M. Aspera, H. Nakanishi, Y.W. Budhi, Pd and Pd-based materials for energy related application, Proceedings of the 7th International Symposium on Energy, England, Aug. 2017.
50. R. Kishida,* H. Kasai, S.M. Aspera, R.L. Arevalo, H. Nakanishi, *Mechanism of branching reactions in melanin formation*, Proceedings of the International Workshop on Advanced Materials and Nanotechnology, Hanoi, 2016.
51. H. Kasai, H. Nakanishi, K. Shimizu, K. Matsutani, T. Kaeda, Y. Masahiro, S.M. Aspera, R.L. Arevalo, B. Chantaramolee,* *First principles study of oxygen reduction reaction on Pt(110) and PtML/Ag(110) surfaces*, Abstracts of the 2018 Japan Surface Vacuum Society, Kobe, 2018.

Non-refereed Journals / Magazines / Reviewers / Laboratory Manuals

1. R.L. Arevalo, *Laboratory manual for periodic density functional theory (DFT) - based first principles calculations*, University of San Carlos, 2020.
2. R.L. Arevalo, E.F. Arguelles, H. Kasai, *Yoshimori-Kasai Model at 30 years, celebrated in a workshop*, Journal of the Surface Science Society of Japan (2013) 2737.
3. R.L. Arevalo, A.F. Ole, *Heat and Thermodynamics* in "PNU LET Review Material", PNU Press, 2013 (revised edition)
4. R.L. Arevalo, *Heat and Thermodynamics* in "PNU LET Review Material", PNU Press, 2009 (ISSN 1908-1324)
5. R.L. Arevalo, *Off-campus: Lessons learned*, PRISM (2009).
6. R.L. Arevalo, *On Extra Senses*, PRISM (2008) 13.
7. R.L. Arevalo, *The Yin-Yang and its Implications in Science and Religion*, PRISM (2007) 10.
8. R.L. Arevalo, et al., Laboratory Manual in Physics 1, Philippine Normal University, 2007.
9. R.L. Arevalo, *Beyond Tangibles: Two Questions*, Spectrum 2(2) (2004) 4.
10. R.L. Arevalo, *Beyond Tangibles: On Extra Senses*, Spectrum 2(1) (2004) 6.