

POSTERS

Poster Session and Mixer 1

Time: 18:15 - 20:15

Date: Monday September 30, 2019

Location: Upper ABS Foyer

P001

A Molecular Simulation Study of Carbon Dioxide Adsorption in Two Interpenetrated Metal-Organic Frameworks: LMOF-201 and 202

Ankit Agrawal¹, Mayank Agrawal², Donguk Suh¹, Yunsheng Ma³, Ryotaro Matsuda³, Wei-Lun Hsu¹, Hirofumi Daiguji¹

¹University of Tokyo, Tokyo, Japan. ²Georgia Institute of Technology, Atlanta, USA. ³Nagoya University, Nagoya, Japan

P002

Investigating Luminescent Metal Complexes using Computational Methods

Johnny Agugiaro, David Wilson

La Trobe University, Melbourne, Australia

P003

Theoretical Investigation of Ring-Expansion of N-Heterocyclic Carbenes (NHCs) Containing C, P, O, S Heteroatoms

Khalidah Al-Furaiji, David Wilson

La Trobe Institute for Molecular Science, Melbourne, Australia

P004

Roby-Gould Bond Indices as a Tool in Chemistry

Khidhir Alhameedi

School of Molecular Sciences, The University of Western Australia, Perth, Australia

P006

Toroidal States in an Isosceles Spin Triangle Without Spin-Orbit Coupling: Applications in a Molecular Spintronics Device

Jared Ashtree, Shashank Rao, Alessandro Soncini

University of Melbourne, Parkville, Australia

P007**Valence and Core Electron Spectroscopy for the Conformational Study of Bio-active Pyridine Derivatives**

Fred Backler¹, Hanan Sa'adeh^{2,3}, Kevin Prince³, Feng Wang¹

¹Swinburne University of Technology, Melbourne, Australia. ²The University of Jordan, Amman, Jordan. ³Elettra Sincrotrone, Trieste, Italy

P008**Effect of Ca-Dopant on Lithium Ion Conductivity in Li₇P₃S₁₁ and Li₃PS₄ Solid Electrolytes**

Ardehir Baktash¹, Debra Searles^{1,2}

¹Centre for Theoretical and Computational Molecular Science, Australian Institute for Bioengineering and Nanotechnology, the University of Queensland, Queensland, Brisbane, Australia. ²School of Chemistry and Molecular Biosciences, the University of Queensland, Queensland, Brisbane, Australia

P009**Towards an Understanding of Field Effects in the G-Quadruplex/Hemin DNAzyme Peroxidation Catalysis.**

Clare Birch, Meredith Jordan

The University of Sydney, Sydney, Australia

P010**Theoretical Progress Towards pH-Switchable Electrostatic Catalysis**

Mitchell Blyth, Michelle Coote

Research School of Chemistry, Australian National University, Canberra, Australia

P011**Fine Tuning of Ligand Field Splitting in Iron(II) Complexes**

Luca Bondi^{1,2}, Federico Totti², Paul Jerabek³, Anna Garden¹, Sally Brooker¹

¹University Of Otago, Dunedin, New Zealand. ²University Of Florence, Florence, Italy. ³Max-Planck-Institut für Kohlenforschung, Mülheim an der Ruhr, Germany

P012**Microscopic Mechanism of SEI Film Formation in Highly Concentrated Electrolytes Based on Nonflammable Trimethyl Phosphate Solvent**

Amine Bouibes¹, Norio Takenaka², Soumen Saha³, Masataka Nagaoka¹

¹Nagoya University, Nagoya, Japan. ²University of Tokyo, Tokyo, Japan. ³Kyoto University, Nagoya, Japan

P013**On the Application of the Hubbard-U Correction in Modelling Semiconductors for Solar Water Splitting**

Joshua Brown, Alister Page

The University of Newcastle, Newcastle, Australia

P014**Effect of Magnetic Anisotropy on Direct Chiral Discrimination in Paramagnetic NMR Spectroscopy**

Simone Calvello^{1,2}, Alessandro Soncini¹

¹The University of Melbourne, Melbourne, Australia. ²Australia's Nuclear Science and Technology Organisation, Sydney, Australia

P015**The Full Potential Energy Surface for N-H Tautomerisation in Free-Base Porphyrin**

Peter Canfield^{1,2,3}, Jeffrey Reimers^{4,3}, Maxwell Crossley¹

¹The School of Chemistry, University of Sydney, Sydney, Australia. ²ORAINNOVA, Sydney, Australia.

³International Centre for Quantum and Molecular Structures, Shanghai University, Shanghai, China.

⁴University of Technology Sydney, Sydney, Australia.

P016**Long-Range Corrected Double Hybrid Density Functionals Optimised for Electronic Excitations**

Marcos Casanova-Páez, Lars Goerigk

The University of Melbourne, Melbourne, Australia

P017**Towards an Accurate Description of Solvent Effects**

Junbo Chen¹, Yihan Shao², Bun Chan³, Junming Ho¹

¹University of New South Wales, Sydney, Australia. ²University of Oklahoma, Norman, USA.

³Nagasaki University, Nagasaki, Japan

P018**Molecular Vibrational Spectroscopy Study by Path Integral Liouville Dynamics**

Zifei Chen, Zhijun Zhang, Xinzijian Liu, Kangyu Yan, Haifeng Zheng, Jian Liu

Institute of Theoretical and Computational Chemistry, College of Chemistry and Molecular Engineering, Peking University, Beijing, China

P019**Computational Insights into the Role of BINOL-Derived Catalysts in Asymmetric Nazarov Cyclisations**

Yuk Ping Chin, Elizabeth Krenske

¹School of Chemistry and Molecular Biosciences, The University of Queensland, Australia

P020**An In-Silico Investigation of Menthol Metabolism**

Taweetham Limpanuparb, Wanutcha Lorpaiboon, Kridtin Chinsukserm

Mahidol University, Salaya, Thailand

P021**Recent Development of Automated Density-Functional Tight-Binding Parameterization for Metal-Containing Systems**

Chien-Pin Chou¹, Aditya Sakti², Hiromi Nakai^{1,2,3}

¹Waseda Research Institute for Science and Engineering (WISE), Waseda University, Tokyo, Japan.

²Element Strategy Initiative for Catalysts and Batteries (ESICB), Kyoto University, Kyoto, Japan.

³Department of Chemistry and Biochemistry, School of Advanced Science and Engineering, Waseda University, Tokyo, Japan

P022**Collisional Energy Transfer Between Hot CH₃CHO/CH₂CHOH and N₂**

Maggie Corrigan, Isabella Russell, Meredith Jordan

School of Chemistry, the University of Sydney, Sydney, Australia

P023**Predicting NMR Spectra Using Mixed Pseudoramp-Gaussian Basis Sets**

Claudia Cox¹, Juan Camilo Trujillo^{2,1}, Laura McKemmish¹

¹UNSW, Sydney, Australia. ²Universidad Icesi, Cali, Colombia

P024**fragHAR: Towards Ab Initio Quantum Crystallographic X-Ray Structure Refinement for Polypeptides and Proteins**

Justin Bergmann¹, Max Davidson², Esko Oksanen³, Ulf Ryde¹, Dylan Jayatilaka²

¹Lund University, Lund, Sweden. ²University of Western Australia, Perth, Australia. ³European Spallation Source, Lund, Sweden

P025**Electronic Structure Understanding of the Mechanically Induced Selectivity in Acid Catalyzed Chitin Hydrolysis**

Danjo De Chavez¹, Horikazu Kobayashi², Atsushi Fukuoka², Jun-ya Hasegawa²

¹Graduate School of Chemical Sciences and Engineering, Hokkaido University, Sapporo, Japan.

²Institute for Catalysis, Hokkaido University, Sapporo, Japan

P026**Studies of Peroxide Intermediate Structure and Mechanism of the Aryl Nitration Reaction in Nonheme N-Oxygenase CmlI – A Theoretical Study**

Salai Kalaiselvi Dhanasekaran, Senthilnathan Dhurairajan

Centre for Computational Chemistry, CRD, PRIST Deemed to be University, Thanjavur, India

P027**Computational Design of Highly Activating Ligands for Atom-Transfer Radical Polymerisation**

Phuong Doan, Benjamin Noble, Alfred Fung, Michelle Coote

ARC Centre of Excellence for Electromaterials Science, Research School of Chemistry, Australian National University, Canberra, Australia

P028**Effect of Liquid Phase on Heterogeneous Catalytic Reactions**

Swarit Dwivedi¹, Samir Mushrif², Alan Chaffee¹, Akshat Tanksale¹

¹Monash University, Melbourne, Australia. ²University of Alberta, Edmonton, Canada

P029**Exploring the Structure and Mechanism of Transport of the Human Sodium Proton Exchanger Isoform One (NHE1)**

Nehad El Salamouni^{1,2,3}, Michael Kelso^{1,2,3}, Haibo Yu^{1,2,3}

¹School of Chemistry and Molecular Bioscience, , University of Wollongong , Wollongong, Australia.

²Molecular Horizons, University of Wollongong, Wollongong, Australia. ³Illawarra Health and Medical Research Institute, Wollongong, Australia

P030**Molecular Dynamics Simulations of Specific Ion Effects at Interfaces**

Gareth Elliott, Grant Webber, Erica Wanless, Alister Page

University of Newcastle, Callaghan, Australia

P031**Predicting the Basicity of *N*-Heterocyclic Carbenes**

Alicia Evans, Jason Harper, Junming Ho

UNSW, Sydney, Australia

P032**Accurate Approach in Simulating the Electronic Absorption Cross Section of Small to Medium Molecules**

Sara Farahani, Joseph Lane

University of Waikato, Hamilton, New Zealand

P033**Energy-Based Automatic Fragmentation in the Linear-Scaling Divide-and-Conquer Electron Correlation Calculations**

Toshikazu Fujimori¹, Masato Kobayashi^{2,3,4}, Tetsuya Taketsugu^{1,2,3,4}

¹Graduate School of Chemical Sciences and Engineering, Hokkaido University, Sapporo, Japan.

²Faculty of Science, Hokkaido University, Sapporo, Japan. ³WPI-ICReDD, Hokkaido University, Sapporo, Japan. ⁴ESICB, Kyoto University, Kyoto, Japan

P034**Machine Learning Study for Optimization of Reaction Conditions Including Discrete Variables with Small Number of Experiments**

Mikito Fujinami¹, Hiroki Maekawara¹, Junji Seino^{2,3}, Hiromi Nakai^{1,2,4}

¹Department of Chemistry and Biochemistry, School of Advanced Science and Engineering, Waseda University, Tokyo, Japan. ²Waseda Research Institute for Science and Engineering, Waseda University, Tokyo, Japan. ³PRESTO, Japan Science and Technology Agency, Saitama, Japan. ⁴Element Strategy Initiative for Catalysts and Batteries (ESICB), Kyoto University, Kyoto, Japan

P035**Mechanism and Optimisation of Nitroxide Mediated Photopolymerisation**

Melinda Fule¹, Nicholas Hill^{1,2}, Michelle Coote^{1,2}

¹Australian National University, Canberra, Australia. ²ARC Centre of Excellence for Electromaterials Science, Wollongong, Australia

P036**Parallel MP2 by Quadrature**

Giuseppe Barca, Simon McKenzie, Andrew Gilbert, Nathaniel Bloomfield, Peter Gill
Australian National University, Canberra, Australia

P038**Decomposing Specific-Ion Interactions**

Kasimir Gregory, Erica Wanless, Grant Webber, Alister Page

The University of Newcastle, Callaghan, Australia

P039**Molecular Modelling of Non-Ionic Surfactant (C₁₂E₆) Aqueous Phase Behaviour**

Amali Guruge¹, Dallas Warren², Colin Pouton², David Chalmers¹

¹Medicinal Chemistry, Monash Institute of Pharmaceutical Sciences, Monash University, 381 Royal Parade, Parkville, Victoria 3052, Australia. ²Drug Delivery, Disposition and Dynamics, Monash Institute of Pharmaceutical Sciences, Monash University, 381 Royal Parade, Parkville, Victoria 3052, Australia

P040**Influence of Sugar and Bases on the Stretching Vibrations of PO₂⁻ of DNA: A Computational Study with FMO/FDD.**

Eunice Gwee^{1,2,3}, Kamila Kochan^{1,3}, Glen Deacon¹, Bayden Wood^{1,3}, Ekaterina Izgorodina^{1,2}

¹Monash University, Melbourne, Australia. ²Monash Computational Chemistry Group, Melbourne, Australia. ³Centre of Biospectroscopy, Melbourne, Australia

P041**Theoretical Study of Ni Catalysts for H₂ Oxidation and Production via the Minimum Energy Intersystem Crossing Point**

Sarinya Hadsadee¹, Manussada Ratanasak², Siriporn Jungstittiwong¹, Jun-ya Hasegawa²

¹Ubon Ratchathani University, Ubon Ratchathani, Thailand. ²Hokkaido University, Hokkaido, Japan

P042**Electronic Transport Investigation of Redox-Switching Azulenequinones/Hydroquinones via First-Principles Studies**

El-Abed Haidar¹, Sherif Tawfik², Catherine Stampfl¹, Kimihiko Hirao³, Kazunari Yoshizawa⁴, Safinaz El-Demerdash⁵, Takahito Nakajima³, Ahmed El-Nahas^{3,4,5}

¹School of Physics, The University of Sydney, Sydney, New South Wales 2006, Australia, Sydney, Australia. ²School of Science, RMIT University, GPO Box 2476 Melbourne, Victoria 3001 Australia, Melbourne, Australia. ³RIKEN, Advanced Institute for Computational Science, 7-1-26 Minatojima-minami, Chuo, Kobe 650-0047, Japan, Kobe, Japan. ⁴Institute for Materials Chemistry and Engineering, Kyushu University, Nishi-ku, Fukuoka 819-0395, Japan, Fukuoka, Japan. ⁵Chemistry Department, Faculty of Science, Menoufia University, Shebin El-Kom 32512, Egypt, Shebin El-Kom, Egypt

P043**Normal Mode Analysis for Vibrational Motions in Liquid Water**

Zheng Haifeng, Yi Shasha

Peking University, Beijing, China

P044**Transport Properties of Ionic Liquids from MD Simulations with a Self-Consistent Atomic Charge Determination**

Lukman Hakim^{1,2,3}, Yoshiki Ishii², Nobuyuki Matubayasi²

¹Elements Strategy Initiative for Catalysts and Batteries, Kyoto University, Kyoto, Japan. ²Graduate School of Engineering Science, Osaka University, Osaka, Japan. ³Department of Chemistry, Brawijaya University, Malang, Indonesia

P045**Ab Initio Examination of Nitrogen Gas Solubility in Fluorinated Ionic Liquid Clusters**

Peter Halat, Douglas MacFarlane, Katya Pas

Monash University, Clayton, Australia

P046**Assessing Noncovalent Interactions in Electronic Excited States**

Amy Hancock, Lars Goerigk

University of Melbourne, Melbourne, Australia

P047**Finding and Analyzing Interfacial Amorphous Carbon Structures in CNT-Based Functional Materials by Artificial Force Induced Reaction Method**

Taisuke Hasegawa¹, Makito Takagi², Yosuke Sumiya³, Satoshi Maeda^{3,1}

¹NIMS, Tsukuba, Japan. ²Yokohama City University, Yokohama, Japan. ³Hokkaido University, Sapporo, Japan

P048**Understanding the Extent of Ionicity in Diamine Protic Ionic Liquids**

Fairuz Hashim¹, Steven Pas², Douglas MacFarlane¹, Ekaterina Izgorodina¹

¹Monash University, Melbourne, Australia. ²Defence Science and Technology Organisation, Melbourne, Australia

P049**Tuning of the Dielectric Constant to Correct for Delocalisation Error: Development and Preliminary Testing of a Novel Computational Method**

Luke Hemmingsen¹, Oliver Hervir¹, Stephen Dale^{1,2}

¹Australian National University, Canberra, Australia. ²University of Sydney, Sydney, Australia

P050**Internal Oriented Electric Fields as a Strategy for Selectively Modifying Photochemical Reactivity**

Nicholas Hill^{1,2}, Michelle Coote^{1,2}

¹Australian National University, Canberra, Australia. ²ARC Centre of Excellence for Electromaterials Science, Wollongong, Australia

P051

Importance of Li Distribution on High Li Conductivity in $\text{Li}_x(\text{Ge,P})_3\text{S}_{12}$

Yoyo Hinuma^{1,2}, Takeshi Yajima³, Satoshi Hori⁴, Rui Iwasaki³, Zenji Hiroi³, Ryoj Kanno⁴

¹Chiba University, Chiba, Japan. ²National Institute for Materials Science, Tsukuba, Japan. ³University of Tokyo, Kashiwa, Japan. ⁴Tokyo Institute of Technology, Yokohama, Japan

P052

Effect of Protonation on the Reaction Mechanism of Fragmentation and 1,3-Rearrangement *via* Breslow Intermediates

Ming-Hsiu Hsieh^{1,2}, Jen-Shiang Yu^{1,2,3}

¹Department of Biological Science and Technology, National Chiao Tung University, Hsinchu, Taiwan.

²Institute of Bioinformatics and Systems Biology, National Chiao Tung University, Hsinchu, Taiwan.

³Center for Intelligent Drug Systems and Smart Bio-devices (IDS2B), National Chiao Tung University, Hsinchu, Taiwan

P053

Without Compromising Efficiency and Accuracy: Solving the Nuclear Schrödinger Equation Using Path Integral Monte Carlo Simulation with Modified Shepard Interpolation

Gavin Huang, Meredith Jordan

The University of Sydney, Sydney, Australia

P054

Molecular Spintronics with Single-Molecule Magnets Under Irradiation

Kieran Hymas, Alessandro Soncini

The University of Melbourne, Melbourne, Australia

P055

A Systematic Study on Bond Activation Energies of NO, N₂, and O₂ Catalyzed by Eight Transition Metal Hexamers

Tomoya Ichino¹, Satoshi Maeda^{1,2,3}

¹Department of Chemistry, Faculty of Science, Hokkaido University, Sapporo, Japan. ²Institute for Chemical Reaction Design and Discovery (WPI-ICReDD), Hokkaido University, Sapporo, Japan.

³Research and Services Division of Materials Data and Integrated System (MaDIS), National Institute for Materials Science (NIMS), Tsukuba, Japan

P056**Key Factor of the S_0/S_1 Minimum Energy Conical Intersection**

Mayu Inamori¹, Yasuhiro Ikabata², Takeshi Yoshikawa², Hiromi Nakai^{1,2,3}

¹Department of Chemistry and Biochemistry, Waseda University, Tokyo, Japan. ²WISE, Waseda University, Tokyo, Japan. ³ESICB, Kyoto University, Kyoto, Japan

P057**The Production of Formic Acid and Formaldehyde From CO₂ Using Boron-Doped Diamond: A Theoretical Study**

Yuwanda Injongkol^{1,2}, Siriporn Jungsuttiwong¹, Alejandro Montoya²

¹Department of Chemistry, Faculty of Science, Ubon Ratchathani University, Ubon Ratchathani, Thailand. ²School of Chemical and Biomolecular Engineering, The University of Sydney, Sydney, Australia

P058**The Role of Solvation in Predicting Protein–Ligand Binding Affinities: Validating the Automated Topology Builder**

Kasey Ireland, Nicole Wheatley, Martin Stroet, Alan Mark

University of Queensland, Brisbane, Australia

P059**An Exploration of Bifurcation on a Reaction Route Network of a Diels–Alder Reaction Based on the AFIR Method**

Takuma Ito¹, Yu Harabuchi^{2,3,4}, Satoshi Maeda^{2,4,5}

¹Graduate School of Chemical Sciences and Engineering, Hokkaido University, Sapporo, Japan.

²Department of Chemistry, Faculty of Science, Hokkaido University, Sapporo, Japan. ³JST, PRESTO, Saitama, Japan. ⁴WPI-ICReDD, Sapporo, Japan. ⁵NIMS, Tsukuba, Japan

P060**Investigating the Mechanism of High Performing Dielectric Materials**

Lilit Jacob, Terry Frankcombe

UNSW, Canberra, Australia

P061**Identifying Binding Modes of Neurosteroids at an Intra-Subunit Pocket on GABA_A Receptors**

Tian Jiang^{1,2}, Ali Kusay^{1,2}, Thomas Balle^{1,3}

¹Sydney School of Pharmacy, Faculty of Medicine and Health, The University of Sydney, Sydney, Australia. ²Brain and Mind Centre, The University of Sydney, Sydney, Australia. ³Brain and Mind, The University of Sydney Centre, Sydney, Australia

P062**Implications of Hybrid Organic–Inorganic Functionalized Dodecaborane Dianions in Lithium and Magnesium Ion Batteries**

Meenakshi Joshi^{1,2}, Tapan Ghanty^{1,2}

¹Homi Bhabha National Institute, Mumbai, India. ²Theoretical Chemistry Section, Chemistry Group, Bhabha Atomic Research Centre, Mumbai, India

P063**Computational Insights into the Origin of Enantioselectivity in a Palladium Catalyzed Dynamic Kinetic Asymmetric Transformation of Racemic Biaryls**

Surya K., Raghavan Sunoj

Indian Institute of Technology Bombay, Mumbai, India

P064**Stabilising Molecular Fragments of Group 13, 15 Heteronuclear Diatomics**

Aishvaryaadeep Kaur, David Wilson

La Trobe University, Melbourne, Australia

P065**Examination of Statistical Methods for Analyzing Fragment Molecular Orbital Calculation Results on Ligand-Protein Interactions.**

Yusuke Kawashima¹, Nanami Mori¹, Hiroto Moriawaki², Norihito Kawashita³, Yu-Shi Tian¹, Tatsuya Takagi¹

¹Graduate School of Pharmaceutical Sciences, Osaka University, Suita, Japan. ²RIKEN Center for Biosystems Dynamic Research, Yokohama, Japan. ³Faculty of Science and Engineering, Kindai University, Higashi Osaka, Japan

P066**HACA Accelerated: The Role of the Submerged Barrier in the Rate of Radical–Acetylene Addition Reactions**

Patrick Kelly¹, Oisin Shiels¹, Aislinn Turner¹, Brett Burns¹, Cameron Bright¹, Stephen Blanksby², Gabriel da Silva³, Adam Trevitt¹

¹University of Wollongong, Wollongong, Australia. ²Queensland University of Technology, Brisbane, Australia. ³University of Melbourne, Melbourne, Australia

P067**Control of Ziegler–Natta Catalyst Activity by the Structural Design of External Donor**

Vikas Khatri¹, Gurmeet Singh², Hemant Kashyap¹

¹Indian Institute of Technology, Delhi, India. ²R&D Center, IndianOil Corporation Ltd, Faridabad, India

P068**Size-Dependent Level Alignment Between Anatase and Rutile TiO₂ Nanoparticles**

Kyoung Chul Ko

Chonnam National University, Gwangju, Korea, Republic of

P069**Practical Excited-State Simulation of Thousands of Atoms**

Nana Komoto¹, Takeshi Yoshikawa², Junichi Ono², Yoshifumi Nishimura², Hiromi Nakai^{1,2,3}

¹Department of Chemistry and Biochemistry, Waseda University, Tokyo, Japan. ²WISE, Waseda University, Tokyo, Japan. ³ESICB, Kyoto University, Kyoto, Japan

P070**Catalysis by Pure Graphene - From Supporting Actor to Protagonist through π – π Interactions**

Asja Kroeger, Amir Karton

The University of Western Australia, Perth, Australia

P071**Role of Atmospheric Molecular Clusters in the Atmosphere**

Jakub Kubečka, Theo Kurtén, Hanna Vehkamäki

University of Helsinki, Helsinki, Finland

P072**Towards Selective nAChR Therapeutics: Identifying the Binding Mode of CMPI and NS9283 in $\alpha 4\beta 2$ nAChRs**

Ali Kusay^{1,2}, Thomas Balle^{1,2}

¹Sydney School of Pharmacy, Faculty of Medicine and Health, The University of Sydney, Sydney, Australia. ²Brain and Mind Centre, The University of Sydney, Sydney, Australia

P073**Calculating the Exact Ground-State Wave Function of Two-Electron Atoms via Analytic Perturbation Theory**

Johanna Langner, Henryk Witek

National Chiao Tung University, Hsinchu, Taiwan

P074**Insights into MoTe₂ Intrinsic Defects from Ab Initio Calculations**

Martina Lessio¹, Alexander Kerelsky², Abhay Pasupathy², David Reichman²

¹University of Sydney, Sydney, Australia. ²Columbia University, New York, USA

P075**Scaffold-Based Molecular Design Using Graph Generative Model**

Jaechang Lim, Sang-Yeon Hwang, Seungsu Kim, Seokhyun Moon, Woo Youn Kim

KAIST, Daejeon, Korea, Republic of

P076**Investigating the Effects of Membrane Lipid Composition on Neurotransmitter Transport Function**

Yiechang Lin, Katie Wilson, Megan O'Mara

Australian National University, Canberra, Australia

Poster Session and Mixer 2

Time: 18:00 - 20:00

Date: Tuesday October 1, 2019

Location: Upper ABS Foyer

P077

Finding Electrons: Transforming Chemical Thought by Analysing Wavefunctions

Yu Liu

The University of New South Wales, Sydney, Australia

P078

Spin Crossover Induced by Non-Covalent Interaction of a Metal–Organic Complex with N-Doped Graphene

Bruno Torre¹, Martin Švec¹, Rabindranath Lo², Debashree Manna², Amrit Sarmah², Dana Nachtigallová², Radek Zbořil³, Pavel Hobza^{2,3}, Pavel Jelínek¹, Prokop Hapala¹

¹Institute of Physics of the Czech Academy of Sciences, Prague 6, Czech Republic. ²Institute of Organic Chemistry and Biochemistry of the Czech Academy of Sciences, Prague 6, Czech Republic.

³Regional Centre of Advanced Technologies and Materials, Palacký University, Olomouc, Czech Republic

P079

The One-Electron Self-Interaction Error in 50 Density Functional Approximations

Dale Lonsdale, Lars Goerigk

The University of Melbourne, Melbourne, Australia

P080

The Effect of Ionic Liquids on the H₂ Splitting Capacity of Frustrated Lewis Pairs: Computational Insights

Kaycee Low¹, Lucy Brown², Małgorzata Swadźba-Kwaśny², Ekaterina Izgorodina¹

¹School of Chemistry, Monash University, Clayton, Australia. ²The QUILL Research Centre, University of Belfast, Belfast, Ireland

P081

Effect of Factors on Ethylene Epoxidation by Oxoiron(IV) Porphyrin π -Cation Radical Complex in High Spin States: A DFT Study

Zhifeng Ma¹, Hiroshi Fujii², Masahiko Hada¹

¹Tokyo Metropolitan University, Tokyo, Japan. ²Nara Women's University, Nara, Japan

P082**Determining the Mechanism of a Novel Class of Mitochondrial Uncoupler**

Hugo MacDermott-Opeskin, Megan O'Mara

ANU, Canberra, Australia

P083**Theoretical Insights into CO₂ Hydrogenation to Methanol by a Mn–PNP Complex**

Shyama Mandal¹, Kuber Rawat¹, Surajit Nandi¹, Biswarup Pathak^{1,2}

¹Discipline of Chemistry, Indian Institute of Technology Indore, Indore, India. ²Discipline of Metallurgy Engineering and Materials Science, Indian Institute of Technology Indore, Indore, India

P084**Correlation Effects in the Photoelectron Spectrum and Photoionization Dynamics of OsO₄**

Soumitra Manna, Sabyashachi Mishra

Indian Institute of Technology Kharagpur, Kharagpur, India

P085**Investigating the Effect of Protonation Site on Photostability**

Samuel Marlton¹, Benjamin McKinnon¹, Boris Ucur¹, Stephen Blanksby², Adam Trevitt¹

¹UOW, Wollongong, Australia. ²QUT, Queensland, Australia

P086**Polarisation of Water in Hydrated Choline Dihydrogen Phosphate and Related Ionic Liquids**

Thomas Mason¹, Zoe Seeger¹, Anh Nguyen¹, Kyoko Fujita², Ekaterina Pas¹

¹Monash University, Melbourne, Australia. ²Tokyo University of Pharmacy and Life Sciences, Tokyo, Japan

P087**MP2-Q-F12-SOS: A Novel Efficient Method to Compute the MP2-F12 Correlation Energy**

Simon McKenzie, Peter Gill

University of Sydney, Sydney, Australia

P088**Photostability of Protonated Pyridine Derivatives in the Gas Phase**

Benjamin McKinnon¹, Samuel Marlton¹, James Bezzina¹, Stephen Blanksby², Adam Trevitt¹

¹University of Wollongong, Wollongong, Australia. ²Queensland Institute of Technology, Queensland, Australia

P089**Boron Nitride Nanotube Nucleation During Ni-Catalysed Chemical Vapour Deposition: Non-Equilibrium Molecular Dynamics**

Ben McLean, Grant Webber, Alister Page

University of Newcastle, Callaghan, Australia

P090**A Mirror-Image Approach to Spin Contamination in Single-Determinant Wave Functions**

Michael McTigue¹, Giuseppe Barca¹, Andrew Gilbert¹, Peter Gill²

¹Australian National University, Canberra, Australia. ²University of Sydney, Sydney, Australia

P091**Exploring the Applicability of Density Functional Approximations: The Most Comprehensive Benchmark Study of Double Hybrids and Application of Low-Cost DFT to Clam-Like Cyclotricatechylene Capsules**

Nisha Mehta, Brendan Abrahams, Lars Goerigk

The University of Melbourne, Melbourne, Australia

P092**Full Atomistic Simulation of Ethylene/1-Octene Copolymerization Reaction Process Catalyzed by (Pyridylamido)Hf(IV) Complex**

Nana Misawa¹, Yuichi Suzuki¹, Nobuaki Koga^{1,2}, Masataka Nagaoka^{1,2,3,4}

¹Nagoya University, Nagoya, Japan. ²Future Value Creation Research Center, Nagoya University, Nagoya, Japan. ³ESICB, Kyoto University, Kyoto, Japan. ⁴JST-CREST, Tokyo, Japan

P093**Molecular Level Explanation of the Conversion of Regiospecificity (8R to 12S) in Lipoxygenase by a Single Mutation L434F**

Vipin Mishra, Sabyashachi Mishra

Indian Institute of Technology, Kharagpur, India

P094**pH-Switchable Electrostatic Catalysis of Organo-SOMO Reactions**

Ahmed Elaaf Mohamed, Michelle Coote

Australian National University, Canberra, Australia

P095**Theoretical Insights to Novel Beryllium Reactivity**

Andrew Molino, David Wilson

La Trobe University, Melbourne, Australia

P096**Colloidal Stability of Apolar Nanoparticles**

Debora Monego¹, Thomas Kister², Nicholas Kirkwood³, Tobias Kraus², Paul Mulvaney³, Asaph Widmer-Cooper¹

¹ARC Centre of Excellence in Exciton Science, University of Sydney Nano Institute, School of Chemistry, University of Sydney, Sydney, Australia. ²INM Leibniz Institute for New Materials, Saarbrücken, Germany. ³ARC Centre of Excellence in Exciton Science, School of Chemistry, University of Melbourne, Melbourne, Australia

P097**A Computational Study of the Mechanism for the Enantiomerization of Tröger's Bases**

Alyssa Dwight, Sooin Byeon, Damian Moran

Macquarie University, North Ryde, Australia

P098**Molecular Dynamics Simulations on DNA Behaviour on Graphene Oxide and Reduced Graphene Oxide-PEG-NH₂ in the Presence of Mg²⁺ and Cl⁻ ions**

Sebastian Muraru¹, Emil Slusanschi², Jorge Burns^{1,3}, Mariana Ionita¹

¹Faculty of Medical Engineering, University Politehnica of Bucharest, Gh Polizu 1-7, 011061, Bucharest, Romania. ²Computer Science Department and Engineering, Faculty of Automatic Control and Computers, Bucharest, Romania. ³Laboratory of Cellular Therapies, Department of Medical and Surgical Sciences for Children & Adults, University Hospital of Modena and Reggio Emilia, Modena, Italy

P099**Systematic Search for Crystal Structures of Dioxides of Group 14 Elements (CO₂, SiO₂, GeO₂) Under Ultrahigh Pressure**

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P100**Coordination Chemistry of Carbon**

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P101**Analytic First-Order Derivatives of Partially Contracted *N*-Electron Valence State Second-Order Perturbation Theory (PC-NEVPT2)**

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P102**Development of Second-Order Perturbation Theory with Low-Rank Approximation to CAS Wavefunctions of Molecular Aggregates**

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P103**Anion Dependences in Solution Structure and Ion Conduction Mechanism in Superconcentrated Electrolyte Solution for Na-Ion Batteries**

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P104**An AFIR Study on the Mechanism of the C-C Coupling Reaction of Borepin Derivatives via Oxidative Deborylation**

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P105**EPHI - An Embarrassingly Parallel Code for Calculating Molecular Hessians via PBS Queues**

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P106**Gas-Phase Structures of Alanine**

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P107**Molecular Dynamics Simulations of the Frequency Dielectric Response of Water**

Joshua Pryor, Stephen Bosi, Erica Smith

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P108**Evaluating Classical Force Fields to Study Dissolution and Crystallisation of Hybrid Organometallic Halide Perovskites.**

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P109**Effect of A6–A11 Linkage Modifications on the Conformational Dynamics of Insulin**

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P110**Optimizing Stable Free Radicals for the Electrochemical Generation of Reactive Intermediates**

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P111**Designer Polymers: Predicting Viscosity from Molecular Simulation**

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P112**Computational Insight into the Excited-State Intramolecular Proton Transfer Mechanism of HPI Dyes**

Ras Baizureen Roseli, Ilene Allison, Atul Shukla, Ebinazar Namdas, Shih-Chun Lo, Elizabeth Krenske

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P113**Rationalising the Photochemistry of Atmospherically Important Carbonyls Through Theory and Structure**

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P114**Potential-Dependent Rates of Reaction for Hydrogen Evolution on MoS₂ Electrocatalysts**

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P115**Theoretical Study of Manganese Melilites and Related Structures**

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P116**Combining Modern Force Fields with ONIOM(QM:MM): The SICTWO Interface**

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P117**Anion Binding Affinity – Acidity versus Conformational Effects**

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P118**Locating Minimum Energy Structures of Materials**

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P119**Semi-Local Machine-Learned Kinetic Energy Density Functional for Orbital-Free Density Functional Theory**

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P120**Theoretical Study on the Optical Properties of Multichromophoric Systems Based on an Exciton Analysis: Modification Guidelines**

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P121**Activation of a Non-Redox Isomerisation Using Static Electricity**

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P122**Understanding the Mechanism of Oxidative Polymerisation of Phenols**

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P123**Machine Learning Protocol for Asymmetric Hydrogenation Catalysis**

Sukriti Singh, Monika Pareek, Avtar Changotra, Sayan Banerjee, Bangaru Bhaskararao, Palaniappan Balamurugan, Raghavan Sunoj

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P124**Microscopic Explanation of the Enantiomeric Excess in S_N1 Reaction in Solution: A Full Atomistic Simulation Study**

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P125**Computational Molecular Spectroscopy Leading the Way to New Physics**

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P126**Crystal Structure Prediction by Artificial Force Induced Reaction Method: Applications to Silicon Carbide**

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P127**Computational Studies of Adsorption and SERS Spectra of 2,2'-Bipyridyl on Au, Ag, and Au-Ag Nanoalloy**

Masato Takenaka¹, Yoshikazu Hashimoto², Takeshi Iwasa^{1,3,4}, Tetsuya Taketsugu^{1,3,4}, Gediminas Seniutinas^{5,6}, Armandas Balcytis^{5,6}, Saulius Juodkazis^{5,6,2}, Yoshiaki Nishijima²

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P128**Computational Studies into Enantioconvergent Guanidine-Copper Complex Catalysed Reactions**

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P129**The Origin of the Anelasticity of Zinc Oxide Nanowires: A Density Functional Theory Study**

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P130**Effect of Adsorption and Surface Strain on the Light-Harvesting Properties and Carrier Mobility of Phosphorene**

Patrick Taylor, Sherif Tawfik, Michelle Spencer

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P131**Theoretical Study on the Reaction Mechanism of Zn(OTf)₂-Mediated Annulations of *N*-Propargylated Tetrahydrocarboline**

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P132**Large-Scale Quantum Mechanical Molecular Dynamics Simulations of Polaron Formation Process in a Lead Halide Perovskite Material Using Divide-and-Conquer Type Density-Functional Tight-Binding Method**

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P133**Cyclohexane Oxidation in Zeolites: Molecular Mechanism and Energetics**

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P134**Spectroscopic Investigation of 2-Phenylcyclobutanamine and Ethylbenzene Derivatives in the Gas-Phase**

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P135**Thermochemical and Kinetic Stabilities of Giant Fullerenes Using Density Functional Tight Binding Theory with Isodesmic Reactions**

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P136**Machine Learning for Predicting Electron Transfer Coupling in Organic Semiconductors**

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P137**Establishing Design Principles for Dendronised Polymer Systems for CRISPR Construct Delivery**

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P138**Toward a Quantum-Chemical Benchmark Set for Enzymatically Catalyzed Reactions: Important Steps and Insights.**

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P139**Optimisation of Free Energy Calculations for Use in Structure-based Drug Design**

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P140**Directing the Self Assembly of Nanorods with Depletion Interactions**

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P141**Nitroxide Radical All-Organic Batteries in Ionic Liquid Electrolytes**

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P142**Methods to Improve the Calculations of SMD Solvation Free Energies and Associated pKa Values: Comparison between Choosing an Optimal Theoretical Level, Solute Cavity Scaling and Using Explicit Solvent Molecules**

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P143**Relativistic Effects in the K-Shell Photoionization Differential Cross Sections of Heavy Elements with the Complex Basis Function Method**

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P144**Competition Between Charge Migration and Charge Transfer Induced by Nuclear Motion Following Core Ionization: Model Systems and Application to Li_2^+**

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P145**Linear-Scaling Divide-and-Conquer Finite-Temperature Self-Consistent Field for Static Correlation Systems**

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P146**Re-Examination of Proline-Catalyzed Intermolecular Aldol Reaction: A Theoretical Study of the Mechanism and Stereoselectivity**

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P147**Mechanistic Investigation of the Intramolecular C–H Bond Silylation by Silacyclobutane**

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P148**Reaction Paths for Methacrolein with Low Energy Barriers**

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P149**Bimetallic Alloys for CVD growth of Graphene and Carbon Nanotubes**

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