



MARIA NATALIA ROXAS DIMAANO

D.Eng., Chemical Engineering (Tokyo Institute of Technology, JAPAN)

Dissertation: *Thermal Study and Characterization of Solid-Liquid Phase Change Materials for Low Temperature Thermal Energy Storage*

M.S.Ch.E., Chemical Engineering (University of the Philippines-Diliman, PHILIPPINES)

Thesis: *Assessment and Evaluation of Possible Materials for Low Temperature Thermal Energy Storage System*

B.S.Ch.E.(University of Santo Tomas, PHILIPPINES)

Email: mrdimaano@gmail.com; marianataliadimaano@yahoo.com

BIOGRAPHICAL DETAILS

Professor 2, Department of Chemical Engineering, University of Santo Tomas

Fellow, ASEAN Academy of Engineering and Technology, ((FAAET, July 21, 2012, Selangor, Malaysia)

Fellow, Philippine Institute of Chemical Engineering (PIChE) College of Fellows, (FPIChE, February 28, 2014)

Chair, Governing Council, Metro Manila Industry and Energy Research and Development Consortium (MMIERDC), (March 2014)

Program Lead/Chair, Engineering Graduate Program, UST Graduate School (December 2013 – present)

Coordinator, Engineering Research Program, Faculty of Engineering, UST (June 2013 – present)

Coordinator, Industry and Academe Linkage Program, Faculty of Engineering, UST (AY2009 –2013)

Fellow, JSPS RONPAKU (Ph.D. Dissertation), Tokyo Institute of Technology (JFY 1998-2003)

Philippine Exchange Scientist, Tokyo Institute of Technology (1996, 1997), DOST-JSPS Joint Scientific Cooperation Program

- February 26 - March 27, 1997 (UP- Core University)
- March 11 – 26, 1996

Engr. Gosingo Foundation Professorial Chair in Chemical Engineering (University of Santo Tomas, Philippines, 1993)

DOST-ESEP Lateral Entry Scholar, University of the Philippines – Diliman, 1992-1994

UST-CHE Outstanding Professor, *Plaque of Recognition*, 21 March 2014, Education Auditorium

Highest Rating in the Faculty Competence Evaluation for AY 2011-2012 under the Professor Level, Recognition Day on the Occasion of the 106th Foundation Year of the Faculty of Engineering and the 402nd of the University of Santo Tomas, 16 February 2013, Medicine Auditorium, San martin de Porres Bldg., UST, Manila.

2011 Gregorio Y Zara Award for Applied Research, 60th PHILAAS Annual Convention, September 13-14, 2011, Manila Hotel

2009 NRCP Achievement Award for Division 7 – Engineering and Industrial Research, 77th NRCP Annual General Assembly, March 10, 2010, Manila Hotel

Dangal ng UST Award

- *Gawad San Alberto Magno: Natatanging Mananaliksik sa Agham at Teknolohiya*, 27 February 2009, Dangal ng UST, San Martin de Porres Cinematorium, UST.
- *Gawad Santo Domingo Award for Publication*, 07 July 2000, Dangal ng UST, Medicine Auditorium, UST

Plaque of Recognition, UST

- Gold Series 2004 – 2006, 2012 – 2014
- Silver Series 2002 – 2004, 2000 – 2002, 1998 – 2000, 1996 – 1998

Second Place, PIChE National Undergraduate Research Congress, 2016 PIChE National Convention, “Effects of Pyrolytic Temperature on the Physicochemical Characteristics of Biocharcoal Derived from *Calophyllum inophyllum* (Bitaog) Seed Husks”. Ecovillage Resort and Convention Center, Boracay, Aklan, February 17-19, 2016.

First Runner Up, Best Research Project of the Year, 2008 BPI-DOST Science Award, "Extraction, Transesterification and Characterization of *Calophyllum inophyllum* (Bitaog) Seed Oil as a Potential Source of Biodiesel”, January 18, 2008, BPI Ayala cor. Paseo de Roxas, Makati.

Selected Scientific Poster for Division VII of NRCP (National Research Council of the Philippines). “Vitrification of Steel Slag and Waste Slag and Its Subsequent Transformation to Glass-Ceramics”, Scientific Poster Exhibition, 74th NRCP Annual Meeting: Crossing Disciplinary Boundaries for National Development, Polkabal-Rigodon Hall, Manila Hotel, Manila. 08 March 2007.

2007 PAASE Best Scientific Poster, “Transesterification and Smoke Emission Testing of *Glycine Max* (Soybean Oil) as a Potential Biodiesel Fuel Source”, Annual PAASE Meeting & Symposium 27th APAMS: 2007 International S & T Conference – Science, Engineering and Technology in Economic Development, Century Park Hotel, Manila, 15-17 February, 2007.

First Place (Without Prototype Category), EngVenture 2006: Productive Application of Engineering Expertise in Energy Conservation, “Transesterification and Smoke Emission Testing of *Arachis Hypogaea* (Peanut Oil) as a Potential Biodiesel Fuel Source”, Engineering Week 2006 Recognition, 18 February 2006, Engineering Conference Hall, UST, Manila.

2005 PAASE Best Poster Award, “Corn Oil Methyl Ester as Fuel for Diesel Engines”, 25th Annual Philippine American Academy of Science and Engineering (PAASE) Meeting, Waterfront Hotel, Cebu City, June 24-26, 2005.

Most Productive Faculty Member Award, Academic Year 1995-1996, 13 June, 1996, CAFA Conference Hall, Faculty of Engineering, UST.

RESEARCH INTERESTS

1. Biodiesel / Alternative Fuels / Renewable Energy
2. Materials Science and Engineering (Phase Change Materials)
3. Thermal Energy Storage for Cooling Application

PROFESSIONAL AFFILIATIONS

ASEAN Academy of Engineering and Technology (AAET)

- *Ordinary Fellow* (Approved 21 July 2012)

ASEAN Regional Symposium on Chemical Engineering (RSCE)

- *International Board of Advisors* (member, 2007 – present)
- *Chair*, RSCE 2009

JSPS Alumni Association of the Philippines (JAAP)

- *Treasurer* (May 2013 – November 2014)
- *Adviser* (December 2014 – present)

Philippine Society of JSPS (Japan Society for the Promotion of Science) RONPAKU Fellows [PRF]

- *Board Adviser* (starting January 2011-December 2012)
- *President* (Nov. 2008 –December 2010)
- *Secretary* (Nov. 2005 – Nov. 2008)
- *Life Member* (since 2005)

Association of Tokyo Tech Alumni, Researchers and Scholars, Kuramae Kai, Phils. (ATTARS)

- *Vice-President (Internal)*, (2008)
- *Board Member* (2007, 2009)

National Research Council of the Philippines (NRCP, Division 7)

- *Regular Member*
- *Section Chairperson*
 - NRCP Achievement Awards Committee Chair -2011
 - Technology Sector (NRCP, Division 7) – 2011 – 2013
 - Energy Sector (NRCP, Division 7) – 2007 – 2009
 - Industrial Quality and Standard, National Research Council of the Philippines (NRCP, Division 7) – 2004 – 2005
- *Associate Member* (2002 – 2004)

Metro Manila Industry and Energy Research and Development Consortium (MMIERDC), DOST-NCR

- Chair, Governing Council (March, 2014 – December 2015)
- University Representative, (Nov., 2007 – present)
- Chair, Committee on Research Management, (June 2011 – February, 2014)

Presidential Coordinating Council for Research and Development

- NRCP Representative for the Energy Sector Technical Working Group

Philippine Institute of Chemical Engineers – Metro Manila Academe Chapter (PIChE-MMAC)

- *Board of Directors*, (2015–2017)
- *1ST Vice-President*, (2013 – 2015)
- *Board of Directors*, (2010–2013)
- *Secretary* (2007 – 2010)
- *PRO* (2005 – 2007)

Science and Technology Advisory Council – Japan Foundation, Inc.

- *Treasurer, Board of Directors*, (2003 – 2005)

Science and Technology Advisory Council – Japan Chapter

- *Member* (1998 – 2003)

Philippine – American Academy of Science and Engineering (PAASE)

- *Regular Member*, (2004 – present)

Elsevier Science, Inc.

- *Article Reviewer* (2004 – present)

Institute of Chemical Engineers (IChEmE)

- *Member*, (2001-2002)

Philippine Association for the Advancement of Science (PHILAAS)

- *Life Member*, (since 1998)

Philippine Institute of Chemical Engineers

- *Member*, (1981 – present)

Sambayanan Educational Foundation, Inc. (SEFI), St. Theresa's College, Quezon City

- *Secretariat/Public Relations Officer/Board Member*, (SY 1993 – 1995)

College of Engineering, Baguio Colleges Foundation, Baguio City

- *Instructor*, (November 1984 –October 1986)

Baguio Gold Operation (BGO), Benguet Corporation, Balatoc, Itogon, Benguet, Phils.

- Top Rate Assayist, Assistant Unit Manager Jan. 28, 1985 – March 31, 1987
- Top Rate Chemist, Junior Staff Jan. 28, 1984 – Jan. 27, 1985
- Junior Chemist, Junior Staff Jan. 28, 1982 – Jan. 27, 1983
- Apprentice Chemist, Junior Staff July 28, 1981 – Jan. 27, 1982

A. INTERNATIONAL PUBLICATIONS: ARTICLES (ISI/CC-ABSTRACTED)

- 1.) Rudolph Maynard D.R. Antonio, Anna Angelica C. dela Cruz, Allan S. Quinto Jr., Paul Rodrigo Cordero and **Maria Natalia R. Dimaano** (May 2015). "Bioethanol Production from Pineapple (*Ananas comosus*) Peelings using *Saccharomyces cerevisiae* as Fermenting Yeast with Focus on Fermentation pH", *International Journal of Engineering Research & Technology*, **4** (5), 356 – 360. ISSN: 2278-0181.
- 2.) Charmaine SJ. Lamiel, Ma. Cristina Carmela C. Manocan, Gino Paul M. Marasigan, **Maria Natalia R. Dimaano** (November 2015). "Optimization of Transesterification Parameters in *Ricinus Communis* L. (Castor) Seed Oil for Biodiesel Production: Reaction Temperature based at 70°C", *International Journal of Engineering Research & Technology*, **4** (11), 472 – 476. ISSN: 2278-0181.
- 3.) Charmaine SJ. Lamiel, Ma. Cristina Carmela C. Manocan, Gino Paul M. Marasigan, Maria Natalia R. Dimaano
- 4.) **Maria Natalia RoxasDimaano** and Takayuki Watanabe (2006). "Thermal Performance Characterization of Capric Acid and Lauric Acid Mixture for Low Temperature Energy Storage", *Solar Energy: New Research*, Chapter 1, Nova Science Publications, Inc., Tom P. Hough (Editor-in-chief), 1-42. ISBN: 1-59454-630-4.
- 5.) **Maria Natalia RoxasDimaano** and Takayuki Watanabe (2003). "The Transient Behavior Analysis of The Capric Acid and Lauric Acid Mixture in a Vertical Tube", *Journal of Chemical Engineering of Japan*, **36** (12), p.1421-1431.
- 6.) **M.N. Roxas-Dimaano**, and T. Watanabe (2002). "The Capric and Lauric Acid Mixture with Chemical Additives as Latent Heat Storage Materials for Cooling Application", *ENERGY – The International Journal*, **27** (9), pp. 869-888.
- 7.) **Maria Natalia R.Dimaano** and T. Watanabe (2002). "Performance Investigation of the Capric Acid and Lauric Acid Mixture as Latent Heat Energy Storage for a Cooling System", *Solar Energy*, **72** (3), 205-215.
- 8.) **M. N. R.Dimaano** and T. Watanabe (2002). "The Capric-Lauric Acid and Pentadecane Combination as Phase Change Material for Cooling Applications", *Applied Thermal Engineering*, **22** (4), 365-377.
- 9.) **Dimaano, M.N.R.** and Escoto, A. "Preliminary Assessment of a Mixture of Capric and Lauric Acids for Low-Temperature Thermal Energy Storage" *ENERGY – The International Journal*, **23**, 5 (1998) 421-427.
- 10.) **Dimaano, M.N.R.** and Watanabe, T. (1997). "Measurement of the Radial Temperature Behavior of Pentadecane: A Preliminary Study", *Bulletin of INCOCSAT*, **3**, 90-96.

B. NATIONAL SCIENTIFIC PUBLICATIONS: ARTICLES (ISSN)

- 8) Ricabelle H. Bautista, Lailanie Angela A. Ngojo and **Maria Natalia R. Dimaano**, (February 2014). Preparation of Activated Carbon from *Jatropha* (Tubang Bakod) Nutshells by Chemical Activation with Phosphoric Acid for the Removal of Methylene Blue Dye on Wastewater, *PICHe Journal* **15** (1), pp. 76-84.
- 9) Michelle Hershey O. Cristi, Janice A. Olandres, Amber Loren M. Roxas and **Maria Natalia R. Dimaano** (2013). Thermal Energy Storage Design for Process Cooling Employing Capric and Lauric Acid Mixture as Phase Change Material. *Acta Manilana* **61**(1), pp. 251-256.
- 10) Edsel B. Calica and **Maria Natalia R. Dimaano** (February 2012). Fuel Diesel Characterization and Exhaust Gas Analysis of *Glycine max* Methyl Ester as a Potential Biodiesel Source, *PICHe Journal* **14**(1), pp. 73 -80.
- 11) Dulfo, L.D., Rivero, N.V., Vinluan, H.G.S. and **Dimaano, M.N.R.** (2010). Vitrification of Steel Slag and Waste Glass and its Subsequent Transformation to Glass-Ceramics, *PICHe Journal*, **12**(1), 83-92.

- 12) Ivy Loren P. Aguirre, Ana Marie T. Comia, Michael Ryan F. Perez and **Maria Natalia R. Dimaano** (2006). Corn Oil Methyl Ester as fuel for Diesel Engines, *Acta Manilana* 24, pp. 39 – 42.
- 13) **Maria Natalia Roxas-Dimaano** and Takayuki Watanabe (2002). “The Improvement of Melting Characteristics of Capric-Lauric Acid Mixture Employing Prospective Additives for the Cooling Application of Thermal Energy Storage”, *INHENYERIYA, An International Journal of Engineering*, 2 (3), 1-9.
- 14) **Dimaano, M.N.R.** and Watanabe, T (2000). “Temperature Measurement System for the Mixture of Capric Acid and Lauric Acid as a Low-Temperature Thermal Energy Storage Medium”, *ActaManilana*, 48, 1-10. ISSN 0065-1370.

C. INTERNATIONAL PUBLICATIONS: CONFERENCE PROCEEDINGS AND PRESENTATIONS

- 15) Aurea Elaine L. Dayrit, Abby Claire S. Rotor, Mark Vincent C. Espinosa and Maria Natalia R. Dimaano. “Characterization of Fatty Acid Methyl Esters of *Bauhinia monandra kurz* (Alibangbang) Seed Oil for Potential Diesel Fuel Source.”, 20th ASEAN Regional Symposium on Chemical Engineering (RSCE 2013), Alona Kew White each Resort, Panglao Island, Bohol, Philippines, November 12-13, 2013.
- 16) Antonietta Ramona L. Faronilo, Rachele Ingrid S. Fiala, John Lester C. Lim, and **Maria Natalia R. Dimaano**. “Application of Capric-Lauric Acid with Methyl Salicylate as Phase Change Material Impregnated to Wallboards in a Miniature Sample Unit for Thermal Energy Storage Cooling Application”, 19th Regional Symposium on Chemical Engineering (RSCE 2012), Inna Kuta Beach Hotel, Bali, Indonesia, November 7-8, 2012.
- 17) Joseph Vermont B. Bandoy, Irvine Michael B. Alba, and **Maria Natalia R. Dimaano**, "Evaluation of physico-mechanical properties of low-density-bonded-particleboard from *Jatropha curcas Linn* (Physic Nut), *Calophyllum inophyllum* (Bitaog) Seed Husk and Pencil Shavings", Journal of Science and Technology, Vietnam Academy of Science and Technology, 2011, Vol. 49, Issue 5A, pp 219-226.
- 18) Edsel B. Calica and **Maria Natalia R. Dimaano**. “Efficiency of Transesterification Method and Evaluation of the Smoke Emission Testing of *Glycine max* (Soybean Oil) as a Potential Biodiesel Fuel Source”, 18th Regional Symposium on Chemical Engineering (RSCE 2011), Ho Chi Minh City, Vietnam. Oct. 27-28, 2011.
- 19) Ma. Carmelin S. Gaerlan, Jerome E. Magpayo, Jan Tomnick DG. Martin and **Maria Natalia R. Dimaano**. “Optimization of Transesterification Parameters of *Ricinus communis L.* (Castor) Seed Oil for Biodiesel Production: Reaction Temperature Based at 60°C”, 18th Regional Symposium on Chemical Engineering (RSCE 2011), Ho Chi Minh City, Vietnam. Oct. 27-28, 2011.
- 20) Charmaine SJ. Lamiel, Ma. Cristina Carmela C. Manocan, Gino Paul M. Marasigan and **Maria Natalia R. Dimaano**. “Optimization of Transesterification Parameters of *Ricinus communis L.* (Castor) Seed Oil for Biodiesel Production: Reaction Temperature Based at 70°C”, 18th Regional Symposium on Chemical Engineering (RSCE 2011), Ho Chi Minh City, Vietnam, Oct. 27-28, 2011.
- 21) Boniquit, Edward John F., Cristobal, Patric V., Granada, Gat F. and **Dimaano, Maria Natalia R.** “Engine Performance Analysis of *Calophyllum inophyllum* (Bitaog) Methyl Ester as Biodiesel Based on Optimized Reaction Temperature, Reaction Time and Alcohol to Oil Molar Ratio”, 17th ASEAN RSCE, Queen Sirikit Convention Center, Bangkok, Thailand, November 22, 2010.
- 22) De Guzman, Numeriano C., Trinidad, Leona Gay S., Tumbagahan, Riza R. and **Dimaano, Maria Natalia R.** Extraction, Transesterification and Engine Performance Test of Biodiesel

- from *Terminalia catappa* (Talisay) Seeds”, 17th ASEAN RSCE, Queen Sirikit Convention Center, Bangkok, Thailand, November 22, 2010.
- 23) Gonzales, Chryzel Angelica B. and **Dimaano, Maria Natalia R.** “Evaluation of Physico-Mechanical Properties of a Cement-Bonded Particleboard Made from *Terminalia catappa*(Talisay) Seed Husks and Wood Shavings, 17th ASEAN RSCE, Queen Sirikit Convention Center, Bangkok, Thailand, November 22, 2010.
 - 24) Aldrin, Castro, Lao, Kim Harold C. and **Dimaano, Maria Natalia R.** “Thermal Energy Storage: Particleboard Using Seed Husks of *Calophyllum inophyllum*(Bitao) and *Terminalia catappa*(Talisay or Indian Almond), 17th ASEAN RSCE, Queen Sirikit Convention Center, Bangkok, Thailand, November 22, 2010.
 - 25) Enal, Hernando E. Jr., Lin, Mark Yu Tang P., Tamse, Aldrin Kevin G. and **Dimaano, Maria Natalia R.**, “Preliminary Engine Performance Tests and Smoke Emission Analysis Using *Jatropha*(Tubang-Bakod) Methyl Ester in a Compression Ignition Engine”, 16th ASEAN Regional Symposium on Chemical Engineering: Chemical Engineering at the Forefront of Global Challenges, Manila Hotel, Philippines, December 1-2, 2009.
 - 26) Antonio, Juan Paulo M., Fabros, Alden Ferdinand C., Mendoza, April Shower M. and **Dimaano, Maria Natalia R.** “Preliminary Investigation of *Calophyllum inophyllum* (Bitao) Seed Oil as a Potential Source of Biofuel”, 15th ASEAN Regional Symposium on Chemical Engineering (RSCE), Impiana Hotel and Spa, Kuala Lumpur, Malaysia, December 3-4, 2008.
 - 27) Co, Dana Mae S.¹, Gecain, Ma. Kristina R.¹ and **Dimaano, Maria Natalia R.** “Optimization of *Calophyllum inophyllum*” (Bitao) Seed Husk as a Viable Source of Activated Carbon for Methylene Blue Adsorption”, 15th ASEAN Regional Symposium on Chemical Engineering (RSCE), Impiana Hotel and Spa, Kuala Lumpur, Malaysia, December 3-4, 2008.
 - 28) **Dimaano, Maria Natalia R.** “Transesterification of *Jatropha curcas* Oil as an Alternative Biofuel: Optimization of JME % Yield”, 14th ASEAN Regional Symposium on Chemical Engineering (RSCE), MeliaPurosani Hotel, Yogyakarta, Indonesia, December 4, 2007.
 - 29) Antonio, Juan Paulo M., Fabros, Alden Ferdinand C., Mendoza, April Shower M. and **Dimaano, Maria Natalia R.** “Extraction, Transesterification and Characterization of Bitao (*Calophyllum inophyllum*) Seed Oil as a Potential Source of Biofuel”, 13th International Student Seminar on Transport Research (ISSOT): Contribution of Transportation Sector Toward Global Sustainability, November 20, 2007, Chiba University, Chiba, Japan.
 - 30) Sherwin Valeroso, Kathyryne Charm L. Vibal, Nona Rose V. Zubieto and **Maria Natalia R. Dimaano**, “Transesterification and Smoke Emission Testing of ArachisHypogaea (Peanut Oil) as a Potential Biodiesel Fuel Source”, ASEAN Regional Symposium on Chemical Engineering (RSCE), Nanyang Technological University, Singapore, 3-5 December, 2006.
 - 31) **Maria Natalia R. Dimaano** and Takayuki Watanabe (2004). “Thermal Performance Characterization of Capric Acid and Lauric Acid Mixture for Low Temperature Energy Storage”, 24th Annual Philippine American Academy of Science and Engineering (PAASE) Meeting : Philippine-American Bonds in Science and Technology, August 13-14, 2004, University of Maryland, College Park, MD, USA.
 - 32) **Maria Natalia Roxas Dimaano** and Takayuki Watanabe. “The Solidification Behavior of Phase Change Materials for Low-Temperature Energy Storage”, *Proceedings of the ASEAN Regional Symposium on Chemical Engineering (RSCE) 2003 Chemical: Chemical Engineering in Promoting Sustainable Technology*, Dusit Hotel Nikko Manila, Philippines, F2-Energy and Environmental Technology (December 1-3, 2003).
 - 33) **Maria Natalia Roxas-Dimaano** and Takayuki Watanabe. “Transient Behavior of the C-L Acid for Thermal Energy Storage”, *Proceedings of the 2002 Chemical Engineering Congress*, Angelo King International Center, De La Salle University, Manila, Philippines, pp. B4-1 – B4-10 (December 5-6, 2002).

- 34) **Maria Natalia Roxas-Dimaano** and Takayuki Watanabe (2001). "Characterization of the Capric and Lauric Acid Mixture with Additives as Thermal Energy Storage Medium for Cooling Application", *Proceedings of the 6th World Congress of Chemical Engineering*, (23-27 September, 2001). Melbourne Convention and Exhibition Centre, Melbourne, Victoria, Australia.
- 35) **Dimaano, M.N.R.** and Watanabe, T (2000). "Measurement System for the Temperature Behavior Investigation of Phase Change Materials", *Proceedings of the Chemical and Process Engineering Conference (CPEC) in conjunction with the Regional Symposium on Chemical Engineering (RSCE) 2000: Chemical Industries: Challenges in the New Millennium.*, 33-34. National University of Singapore.
- 36) **Maria Natalia Roxas Dimaano** and Takayuki Watanabe (2003). "The Transient Behavior Analysis of The Capric Acid and Lauric Acid Mixture in a Vertical Tube", *Journal of Chemical Engineering of Japan*, **36** (12), p.1421-1431.
- 37) **Dimaano, M.N.R.** and Watanabe, T (2000). "Measurement System for the Temperature Behavior Investigation of Phase Change Materials", *Proceedings of the Chemical and Process Engineering Conference (CPEC) in conjunction with the Regional Symposium on Chemical Engineering (RSCE) 2000: Chemical Industries: Challenges in the New Millennium.*, University of Singapore, Singapore. 33-34.
- 38) **Dimaano, M.N.R.** and Watanabe, T (1999). "The Capric-Lauric Acid and Pentadecane Combination as Phase Change Material for Low-Temperature Thermal Energy Storage", *Proceedings of the Regional Symposium on Chemical Engineering 1999: Chemical Industries in ASEAN – New Trends in 2000.*, **III**, B. P. Samila Beach Resort and Hotel, Songkhla, Hatyai, Thailand, C4-1 to C4-5.
- 39) **Dimaano, M.N.R.** and Watanabe, T (1999). "Investigation of Performance of the C-L Acid Mixture as a Storage Medium for Low-Temperature Thermal Energy Storage", *Proceedings of the 1999 National Meeting on Chemical Engineering in Japan*, Kanazawa University, Ishikawa Prefecture, Japan, K-204.
- 40) **Dimaano, M.N.R.** and Escoto, A (1995). "Preliminary Assessment of Possible Materials for Low-Temperature Thermal Energy Storage System: Mixture of Capric and Lauric Acid", *Proceedings of the Regional Symposium on Chemical Engineering 1995: Research and Development in Chemical Engineering and Industrialization of ASEAN*, 5-34 to 5-40, Chulalongkorn University, Bangkok, Thailand.

D. NATIONAL CONFERENCE PRESENTATIONS

- 41) Edsel B. Calica and **Maria Natalia R. Dimaano**. "Fuel Characterization and Exhaust Gas Analysis of *Glycine max* Methyl Ester as a Potential Biodiesel Source", 73rd PIChE National Convention, Hotel Tavern, Surigao City, February 15-16, 2012
- 42) Gonzales, Chryzel Angelica and **Dimaano, Maria Natalia R.** "Preliminary Investigation of a Cement-Bonded Particleboard Made from *Terminalia catappa* (Talisay) Seed Husks and Wood Shavings", 59th PHILAAS Annual Convention, Phivolcs Auditorium, Phivolcs Bldg., C.P. Garcia Ave., Diliman, Quezon City. September 8-9, 2010.
- 43) Castro, Aldrin, Lao, Kim Harold C. and **Dimaano, Maria Natalia R.** "Particleboard Production from *Calophyllum inophyllum* (Bitaog) and *Terminalia catappa* (Talisay or Indian almond) Seed Husks", 59th PHILAAS Annual Convention, Phivolcs Auditorium, Phivolcs Bldg., C.P. Garcia Ave., Diliman, Quezon City. September 8-9, 2010.
- 44) Enal, Hernando P. Jr. , Lin, Mark P. Tamse, Aldrin Kevin G. and **Dimaano, Maria Natalia R.** "Preliminary Engine Performance Tests and Smoke Emission analysis Using *Jatropha* (Tubang-Bakod) *Methyl Ester* in a Compression Ignition Engine", 29th Annual PAASE Meeting and Symposium: Linking Science and Engineering to Development, Ateneo de Manila University, July 13-15, 2009.

- 45) Bautista, Ricabelle H., Co, Dana Mae S., Gecain, Ma. Kristina R., Ngojo, Lailani Angela A. and **Dimaano, Maria Natalia R.** “Optimization of *Jatropha curcas*(TubangBakod) and *Calophyllum inophyllum* (Bitao) as a Viable Source of Activated Carbon for Methylene Blue Adsorption”, 31st NAST Annual Scientific Meeting, Manila Hotel, July 8-9, 2009.
- 46) Antonio, Juan Paulo M., Fabros, Alden Ferdinand C., Mendiola, April Shower M. and **Dimaano, Maria Natalia R.** “Preliminary Investigation of *Calophyllum inophyllum* (Bitao) as a Potential Source of Biofuel”. 31st NAST Annual Scientific Meeting, Manila Hotel, July 8-9, 2009.
- 47) Alba, Michael Irvine, Bando, Joseph and **Dimaano, Maria Natalia R.**, Evaluation of Physico-mechanical Properties of Low-Density Polyethylene-Bonded Particleboard Made from *Jatropha curcas* (TubangBakod) and *Calophyllum inophyllum* (Bitao) Seed Husks with Pencil Shavings, 31st National Physics Seminar-Workshop Convention, Physics and Natural Disasters, April 4, 2009, Camarines Sur State Agricultural College, San Jose, Pili, Camarines Sur.
- 48) **Dimaano, Maria Natalia R.** “Generating Power Using Biofuel”, S&T Research Colloquium 2007: Frontliners in Technological Advances – 45 Years of Excellent Research, Thomas Aquinas Research Complex, UST, November 14, 2007.
- 49) Dulfo, Lorenz D., Rivero, Ner V., Vinluan, Gino Herbie S. and **Dimaano, Maria Natalia R.** “Vitrification of Steel Slag and Waste Slag and Its Subsequent Transformation to Glass-Ceramics”, Scientific Poster Exhibition, 74th NRCP Annual Meeting: Crossing Disciplinary Boundaries for National Development, Polkabal-Rigodon Hall, Manila Hotel, Manila. 08 March 2007.
- 50) Mozzaffari-Namin, Fatemeh E. and **Dimaano, Maria Natalia R.** (2007). “Gypsum Wallboard Impregnated with Eutectic Mixture of Capric Acid and Lauric Acid for Thermal Energy Storage cooling application”, Annual PAASE Meeting & Symposium 27th APAMS: 2007 International S & T Conference – Science, Engineering and Technology in Economic Development, Century Park Hotel, Manila 15-17 February 2007.
- 51) Calica, Edsel B., Chua, Rosemarie B. Roque, Maria Cecilia Z. and **Dimaano, Maria Natalia R.** (2007). “Transesterification and Smoke Emission Testing of *Glycine max* (Soybean Oil) as a Potential Biodiesel Fuel Source”, Annual PAASE Meeting & Symposium 27th APAMS: 2007 International S & T Conference – Science, Engineering and Technology in Economic Development, Century Park Hotel, Manila, 15-17 February, 2007.
- 52) Ivy Loren P. Aguirre, Ana Marie T. Comia, Michael Ryan F. Perez, and **Maria Natalia R. Dimaano**(2005). “Corn Oil Methyl Ester as Fuel for Diesel Engines”, 25th Annual Philippine-American Academy of Science and Engineering (PAASE) Meeting and Symposium (25th APAMS), June 24-26, 2005 Waterfront Cebu City Hotel.
- 53) **Maria Natalia Roxas Dimaano** and Takayuki Watanabe (2004). “Design of a Small-Scale Non-Conventional Air-Cooling System Employing the Latent Heat Storage Material”, Proceedings of the 3rd International Conference on Engineering Education (ICEE) and 2004 PATE National Convention: Towards a More Relevant and Globally Competitive Engineering Education”, July 26-27, 2004 Westin Philippine Plaza Hotel, Manila, Philippines.
- 54) **Dimaano, M.N.R.**, “Capric Acid and Lauric Acid Mixture as Phase Change Material for Low Temperature Energy Storage”, National Research Council of the Philippines Division of Engineering and Industrial Research Meeting and Scientific Paper Presentation, Conference Hall, Technological University of the Philippines (15 January 2003).
- 55) **Dimaano, M.N.R. and Watanabe, T.**, “Transient Behavior of the C-L Acid for Thermal Energy Storage”, Proceedings of the 2002 Chemical Engineering Congress, Angelo King International Center, De La Salle University, Manila, Philippines, pp. B4-1 – B4-10 (December 5-6, 2002).

- 56) **Dimaano, M.N.R. and Watanabe, T.**, “Effect of Chemical Additives on the Capric - Lauric Acid Mixture as Phase Change Materials for Cooling Application”, Proceedings of the Philippine Academy of Arts and Sciences’ (PHILAAS) World Conference on Science and Technology (PHILAAS), Manila Hotel, Philippines, Paper No. ER-3, p.59, 11-13 September, 2001, pp. 530-536.
- 57) **Dimaano, M. N. R.** and Watanabe, T., “Capric Acid and Lauric Acid Mixture with Chemical Additives as Latent Heat Storage Materials for Cooling Application”, Proceedings of the 19th Philippine-American Academy of Science & Engineering, 7 July, 2000, Shangri-la Hotel Makati, p. 454.
- 58) **Dimaano, M.N.R.** and Watanabe, T (1997). “Phase Change Materials for Low Thermal Energy Storage System: A Feasibility Study”, Proceedings of the 13th Philippine Chemistry Congress: Chemistry at the Forefront, Asia World Resort Hotel, Puerto Princesa, Palawan, May 28-31, 1997.

E. INVITED OR GUEST SPEAKER / PLENARY REACTOR

- 59) **Invited Lecturer**, “**Enhancing Initiatives for Green Technology Development: Thermal Energy Storage from Biodiesel Production Wastes**”, **2015 Research Fortnight: Tuklas at Likha Pang-Agham sa USTe, 13 March 2015, Benavides Auditorium, UST.**
- 60) **Plenary Speaker**, “**Global Recognition through Invigorated Research**”, Making an Impact through Research, FEU Conference Hall, February 12, 2015.
- 61) **Plenary Speaker**, “**Resource Utilization and Initiatives for Green Technology Development**”, The First International Symposium of Integrated Research and Education Center for Energy Conversion, Storage, Saving and Transport Technologies, November 27-28, 2014, Chikushi Hall, Chikushi Campus, Kyushu University, Kasuga, Fukuoka, Japan.
- 62) **Invited Speaker**, “**Resource Utilization and Initiatives for Green Technology Development in UST**”, Environmental Protection and Green Technology (EPGT) 2014 Seminar Workshop, National Tsing Hua University, Taiwan, November 25, 2014.
- 63) **Invited Speaker**, “**Bridging the Gap Between the Philippine Industry and Academia through Linkage and Partnership**”, **AAET-Korea Engineering Forum**, Seoul Palace Hotel, Gangnam, Seoul, South Korea, 16 October 2013.
- 64) **Resource Speaker**, “**Phase Change Materials: Thermal Energy Storage**”, National Engineering Center, Audio Visual Rm., UP Diliman, Quezon City, July 25, 2013.
- 65) **Resource Speaker**, “**Energy Transcends: Gearing Towards Sustainability and Development**”, Mapua Institute of Technology, Intramuros, Manila, 15 June 2012.
- 66) **Invited Paper Presenter**, “**Resource Utilizations and Initiatives for Green Technology Development in UST**”, Joint UST and Yokohama National University Study Program, Graduate School, UST, 29 February 2012.
- 67) **Resource Speaker**, “**Symposium on Career Orientation**”, 73rd PICHe National Convention, City Cultural Center, Surigao City, 14 February 2012.
- 68) **Plenary Reactor**, “**Towards the Innovation-Led Development Path in the Philippines**”, Traders Hotel, July 22, 2011, organized by DOST-NCR.
- 69) **Resource Speaker**, “**Seminar-Workshop on Energy Auditing**”, Board Room, Thomas Aquinas Research Complex, UST, June 02-03, 2011
- 70) **Plenary/Invited Speaker**, “**Policy and Management of Resource Utilizations and Initiatives for Green Technology Development: Key Solutions to Save Mother Earth**”, Sriwijaya University, Palembang, South Sumatera, Indonesia, December 15, 2010.
- 71) **Technical Keynote Speaker**, “**Biofuels Technology for Environmental Sustainability**”, 17th ASEAN RSCE, Queen Sirikit Convention Center, Bangkok, Thailand, November 22, 2010.

- 72) **Plenary Speaker, “Research and Technology: Keys to Sustainable Economic Development”**, 1stPIChE Davao International Scientific and Engineering Forum, Grand Men Seng Hotel, Davao City, April 16, 2010.
- 73) **Plenary Speaker, “Natural Products as Biofuel Feedstock for the Philippine Energy System”**, Natural Products Annual Convention, CentralLuzonStateUniversity, December 4, 2009.
- 74) Delivered a talk on “**Pamamahalang Basura: Isang Makabagong Paraan Para Makatulong sa Paggigil ng Global Warming at Paraan din Upang Pagkakakitaan**” to the BarangayLeaders of the Science City of Muñoz, Nueva Ecija at the Philippine Carabao Center, Nueva Ecija, May 8, 2009.
- 75) **Plenary Speaker, “Biofuels in Response to the Challenges of Energy Security and Climate Change”**, 44th Annual BIOTA National Convention and Scientific Sessions, April 2, 2009, University of Makati, MakatiCity. **Plenary Speaker**
- 76) Delivered a talk on “**Biofuels Bilang Alternatibong Langis**” to the Barangay Leaders of Nagcarlan, Laguna Outreach activity of the JSPS Phil. RONPAKU in cooperation with DOST-OASEC, Nov. 6, 2008, NagcarlanMunicipalTown Hall, Laguna.
- 77) “**Fuel Crisis and Disaster Mitigation: Coping with Changing Times**”, NRCP Diamond (75th) Jubilee Celebration: Basic Research on Sustainable Environment for National Development, Traders’ Hotel-Manila, Roxas Blvd., Pasay City, September 11, 2008. **Invited Technical Keynote Speaker**
- 78) “**Researches on Biodiesel Production from Plant Seed Oils**”, DOST-JSPS-PRF S&T Workshop: Sharing of Knowledge and Resources through Collaborative Research and Development Initiatives, SEAFDEC, Iloilo, December 19, 2007.
- 79) 42nd Philippine Association for Graduate Education (PAGE) National Assembly: Enhancing Research Culture in Philippine Higher Education Institutions, Manila Hotel, September 22-24, 2007. – **Plenary Reactor to “Theories in IT Research”**
- 80) “**Thermodynamics: The Essence of Thermal Storage**”, Mapua Seminar Rm, Mapua Institute of Technology, Intramuros, Manila, September 12, 2007.
- 81) “**Jatropha curcas (Tubang Bakod) Oil as a Potential Biofuel Alternative**”, Forum on Scientific Research Outputs of JSPS RONPAKU Fellows: Investing in Knowledge for National Development, Bangko Sentral ng Pilipinas, Manila, May 25, 2007. **Invited Paper**
- 82) “**Industrial Application of Capric-Lauric Acid for Low Temperature Energy Storage: An Option**”, PIChE-MMAC Research Colloquium, January 12, 2007, Engineering Conference Hall, UST. **Plenary Lecture**
- 83) “**Introduction to Thermal Energy Storage: Phase Change Material and Its Possible Application to Packaging**”, 12th Technical Symposium, Texas Instruments (Phils.), Inc., 30 July 2004, TI Philippines, Loakan Road, Baguio City. **Plenary Speaker**
- 84) “**Thermal Performance Characterization of Capric Acid and Lauric Acid Mixture for Low Temperature Energy Storage**”, S & T Research Colloquium 2003, Thomas Aquinas Research Complex Auditorium, University of Santo Tomas (19 November 2003). **Plenary Speaker**
- 85) “**Capric Acid and Lauric Acid Mixture as Phase Change Material for Low Temperature Energy Storage**”, National Research Council of the Philippines Division of Engineering and Industrial Research Meeting and Scientific Paper Presentation, Conference Hall, Technological University of the Philippines (15 January 2003).
- 86) 1998 Research Lecture Series, 02 September 1997, Ed-Tech Lecture Room, Central Library, UST.
- 87) **An Echo Seminar on Writing and Packaging Research Proposals in the Natural Sciences and Engineering**, 14 February 1997, AVR Engineering Bldg., UST.
- 88) “**Materials for Thermal Storage**”, 1995 Research Lecture Series, 02 September 1995, College of Science, UST. **Plenary Lecture**
