

Joey Dacula Mangadlao

PhD Candidate in Macromolecular Science and Engineering

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Academic Background

- PhD in Macromolecular Science and Engineering
 - Department of Macromolecular Science and Engineering, Case Western Reserve University, Cleveland, OH (Adviser: **Prof. Rigoberto C. Advincula**)
 - Current GPA: **4.00**
 - Dissertation Topic: Chemistry, functionalization and application of 2D nanomaterials (Graphene, MoS₂, Nanoclay) for functional devices.
 - Fall 2012 – present (expected graduation on December 2015)
- PhD in Organic Chemistry
 - Department of Chemistry, University of Houston, Houston, TX
 - Fall 2010 – Spring 2012 (Continued at Case Western Reserve University)
- Visiting Research Fellow
 - International Centre for Material Science, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India (Adviser: **Prof. CNR Rao**)
 - Research Topic: Graphene intercalation and synthesis of nitrides
 - May 2009 – July 2009
- BS in Chemistry
 - Institute of Chemistry, University of the Philippines, Quezon City, Philippines (Adviser: **Prof. E. Amor**)
 - Thesis Title: Hepatoprotective Effect of Talisai (*Terminalia catappa L.*) Seed Oil Against Paracetamol-Induced Liver Damage
 - June 2005 – March 2009

Publications

- H-Index: **7**
 - Number of Citations: **109**
 - Number of Publication: **16**
1. Catenated Poly(ϵ -caprolactone) and Poly(L-lactide) via Ring-Expansion Strategy. PF Cao, **J. D. Mangadlao**, A.C.C. de Leon, Z Su, and R.C. Advincula *Macromolecules*, **2015**, Article ASAP.
 2. Grafted Carbazole-Assisted Electrodeposition of Graphene Oxide. **J.D. Mangadlao**, A.C.C. de Leon, M.J. L. Felipe, P. Cao, P. Advincula, R.C. Advincula. *ACS Appl. Mater. Interfaces*, **2015**, 7, 10266-10274.
 3. Electrochemical Fabrication of Graphene Nanomesh via Colloidal Templating. **J. D. Mangadlao**, A. C. C. de Leon, M. J. L. Felipe, R. C. Advincula. *Chemical Communications*, **2015**, 51, 7629-7632.
 4. On the Antibacterial Mechanism of Graphene Oxide Langmuir Blodgett Films. **J. D. Mangadlao**, C. M. Santos, M. J. L. Felipe, A. C. C. de Leon, D. F. Rodrigues, R. C. Advincula. *Chemical Communications*, **2015**, 51, 2886-2889.
 5. Smart cements and cement additives for oil and gas operations. J. D. Mangadlao, P. Cao, R. C. Advincula. *Journal of Petroleum Science and Engineering*. **2015**, 129, 63-76.
 6. A Trefoil Knotted Polymer Produced through Ring Expansion. P. Cao, **J. D. Mangadlao**, R. C. Advincula. *Angewandte Chemie*, **2015**, 54, 5127-5131.
 7. Polymeric Catenanes by “Click” Chemistry and Atom Transfer Radical Coupling. A. Bunha, P. Cao, J. D. Mangadlao, F. Shi, E. Foster, K. Pangilinan. *Chemical Communications*, **2015**, 51, 7528-7531.

8. Cyclic poly(vinylcarbazole) via ring-expansion polymerization-RAFT (REP-RAFT). Ajaykumar Bunha, Peng-Fei Cao, **J. D. Mangadlao**, Rigoberto C. Advincula. *Reactive and Functional Polymers*. **2014**, 80, 33-39.
 9. Graphene-Oxide functionalized with ethylenediamine triacetic acid for heavy metal adsorption and anti-microbial applications. I. Carpio, **J. D. Mangadlao**, H. Nguyen, R. Advincula and D. Rodrigues. *Carbon*, **2014**, 77, 289-301.
 10. Applications of Fourier Transform Infrared (FTIR) Imaging. A de Leon, B Tiu, **J. D. Mangadlao**, K Pangilinan, P Cao, R Advincula. *Handbook of Spectroscopy: Second, Enlarged Edition*, **2014** 1179-1200.
 11. Antimicrobial PVK: SWNT nanocomposite coated membrane for water purification: Performance and toxicity testing. F Ahmed, CM Santos, **J. D. Mangadlao**, R Advincula, DF Rodrigues. *Water Research* **2013** 47 (12), 3966-3975.
 12. Electropolymerized and polymer grafted superhydrophobic, superoleophilic, and hemi-wicking coatings. *EL Foster, C Al Christopher, J Mangadlao, R Advincula*. *Journal of Materials Chemistry* **2012** 22 (22), 11025-11031.
 13. Catenated PS-PMMA Block Copolymers via Supramolecularly Templated ATRP Initiator Approach. AK Bunha, **J. D. Mangadlao**, MJ Felipe, K Pangilinan, R Advincula. *Macromolecular rapid communications* **2012** 33 (14), 1214-1219.
 14. A supramolecularly templated catenane initiator and a controlled ring expansion strategy. Peng-Fei Cao , Ajaykumar Bunha , **J. D. Mangadlao** , Mary Jane Felipe , Katrina Irene Mongcopa and Rigoberto Advincula. *Chemical Communications* **2012** 48, 12094-12096.
 15. Graphene nanocomposite for biomedical applications: fabrication, antimicrobial and cytotoxic investigations. CM Santos, **J. D. Mangadlao**, F Ahmed, A Leon, RC Advincula, DF Rodrigues. *Nanotechnology* **2012**, 23, 395101.
 16. 3-component low temperature solvothermal synthesis of colloidal cadmium sulfide quantum dots. IHJ Arellano, **J. D. Mangadlao**, IB Ramiro, KF Suazo. *Materials Letters* **2010**, 64, 785-788.
- Submitted/For Patent Application/In Preparation
 - *Ketyl Radical Induced Photoreduction of Graphene Oxide and its Application for Plastic Electronics.*
 - *LiOH Assisted Exfoliation of Molybdenum Disulfide (MoS₂) in Organic Solvents.*
 - *Grafting of Metal of Nanoparticles on Graphene by Photoreduction.*
 - *Enhanced Oxygen Barrier Property of Thermoplastic Polyurethane with in situ Photogenerated Palladium Nanoparticles.*
 - *Induced Gelation of Montmorillonite Nanoclay by Graphene Oxide Acidity: Structure, Morphology and Application in Oil-Water Separation.*
 - *Metal Nanoparticle Decoration of Cellulose Nanowhiskers (CNW) as Reusable Catalyst for the Reduction of Nitro-aromatic Compounds and Suzuki Cross-Coupling Reaction.*

Recent Conferences/Workshops Attended

2015

- Electropatterning of Graphene via Electropolymerization and Electrodeposition of Carbazole-Containing Molecules. J. D. Mangadlao and R. C. Advincula. *Gordon Research Conference and Gordon Research Seminar*, South Hadley MA, June 2015. (to be attended)

2013-2014

- Synthesis of polymer catenanes via combination of “grafting to” approach by click method and atom transfer radical coupling. *Ajaykumar Bunha, Joey Mangadlao, Edward Foster, Katrina Pangilinan, Rigoberto Advincula*. Poster Presentation. ACS New Orleans, April 2013.

- Synthesis of catenated homopolymer and block copolymer via a supramolecularly templated ATRP Initiator and ring closing approach. *Ajaykumar Bunha, Maria Celeste Tria, Joey Mangadlao, Mary Jane Felipe, Katrina Pangilinan*. Poster Presentation. ACS New Orleans, April 2013.
- Carbazole-assisted electrodeposition of graphene oxide for device fabrication. *Joey Mangadlao, Mary Jane Felipe, Al Christopher De Leon, Rigoberto Advincula*. Oral Presentation. ACS New Orleans, April 2013.
- Fabrication of multilayered transparent and antibacterial graphene-oxide polymer films. *Joey Mangadlao, Catherine Santos, Mary Jane Felipe, Al Christopher De Leon, Debora Rodrigues, Rigoberto Advincula*. Poster Presentation. ACS New Orleans, April 2013.
- In situ photogeneration of silver nanoparticle in biocompatible polymers, antibacterial and release studies. *Joey D. Mangadlao, Rigoberto C. Advincula*. ACS Indianapolis, September 2013. Also presented in University of Michigan Macro 37th Annual Symposium, October 2013.
- MACROPRO2014: Polymers and Additives for Oil and Gas Workshop. Houston, TX. March 2014.
- Conducting Thin Films: Graphene Carbazole Functionalization and Electrodeposition. *Paul Advincula, Joey Dacula Mangadlao, Al Christopher de Leon, Mary Jane Felipe and Rigoberto Advincula*. Poster Presentation. ShowCase, April 2014.
- From Trash to Treasure: Turning Coconut Husks to Cellulose Nanomaterial. *Enrile Bernardo, Joey Dacula Mangadlao, Maria Lourdes Dalida and Rigoberto Advincula*. Poster Presentation. ShowCase, April 2014.
- Induced Gelation of Montmorillonite Nanoclay by Graphene Oxide Acidity: Structure, Morphology and Application. *Kramer Joseph Lim, Joey Dacula Mangadlao, Chaitanya Danda, Maria Lourdes Dalida, João Maia and Rigoberto Advincula*. Poster Presentation. ShowCase, April 2014. Also presented in Microscopy Society in Northeastern Ohio, May 2014.
- In Situ Nanoparticle Generation in Biocompatible Hydrogel Matrix by Photochemical and Galvanic Exchange Methods, Antibacterial and Release Studies. *Joey Mangadlao and Rigoberto Advincula*. Poster Presentation, ShowCase, April 2014.

Research/Work Experience

- Research Assistant (Fall 2010 – Present)
 - Advincula Lab, Case Western Reserve University, Cleveland, Ohio
 - Designs and performs experiments to fulfill the requirements towards a PhD degree.
 - Performs experiments and analyzes samples from various companies such as Kuraray, Michelman, Santrol and Chemrez Technologies.
 - Mentors and assists MS, undergraduate and high schools students.
- Teaching Assistant (Fall 2010 – Spring 2012)
 - University of Houston, Houston, TX
 - Discuss experiments, grade reports and assist undergraduate students in Organic Chemistry 1 and 2 laboratory.
- Science Teacher (January – July 2010)
 - Young Ji International School, Metro Manila, Philippines
 - Teach high school biology, chemistry, physics and mathematics.
- On-The-Job-Trainee (April – May 2008)
 - UNILEVER – Personal Care Department, Metro Manila, Philippines
 - Study and establish the NaCl-viscosity and NaOH-pH relationships of Unilever shampoos marketed in the Philippines

Skills

- Extensive experience in the synthesis and multi-step functionalization of graphene and graphene derivatives and other two-dimensional nanomaterials such as MoS₂ and Nanoclay.

- Extensive experience in SIP (surface-initiated polymerization) on nanomaterial surfaces using ATRP and RAFT polymerization.
- Extensive experience in *in-situ* and solid-state photogeneration of metallic nanoparticles (Ag, Au, Pd) from metal precursors embedded in different polymer matrix
- Experience in pickering emulsions of graphene oxide in different salt concentration, pH and temperature.
- Experience in multi-step organic synthesis and polymers with cyclic topologies.
- Hands-on experience on the following characterization techniques:
 - Spectroscopy – XPS, NMR, MALDI-TOF, ESR, AAS, DLS, FT-IR, Fluorescence, UV-Vis
 - Microscopy – AFM, TEM, SEM, Confocal, Fluorescence, Optical
 - Chromatography – GPC, TLC, Column Chromatography
 - Thermal and Mechanical Analysis – TGA, DSC, Tension and Compression
 - Electrochemical Techniques – Cyclic Voltammetry, Chronoamperometry, Current Sensing AFM
 - Thin Film Fabrication – Langmuir-Blodgett, Langmuir-Schaefer, Electrochemical Deposition, Spin Coating, Layer-by-layer (LbL), Sputter Coating
 - Surface Analysis – Ellipsometry, Contact Angle Goniometer and Surface Plasmon Resonance (SPR)
 - Others – 1D and 2D XRD, Oxygen Transmission Rate (OTR) testing on barrier films

Selected Awards

- Second Place, 2015 Bayer Award
 - Awarded by Bayer to the most outstanding graduate student in the Department of Macromolecular Science and Engineering at CWRU.
- 2014 Koenig Spectroscopy Prize
 - Awarded by Macro Department for the work on an intimate link between XPS and nano-structured surfaces.
- Outstanding Poster
 - Awarded during the Macro 37th Annual Symposium, University of Michigan. October 2013.
- First Place, Scientific Poster Presentation
 - Awarded during the 2008 Asian Science Camp in Bali, Indonesia. August 2008.
- Third Grand Award, 2005 Intel ISEF (International Science and Engineering Fair)
 - Awarded by Intel and Science Service in Arizona, USA. May 2005.

Affiliations

- American Chemical Society (ACS)
 - Member since October 2012 – present.
- Society of Plastic Engineers (SPE)
 - Member from February 2011 – present.

Reference

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