# Curriculum Vitae

## Xinglin Lu

## Educational Background

- **Ph.D. 2015. Municipal Engineering, Harbin Institute of Technology.**
  Title of Ph.D. Dissertation: "Mechanisms and Control Strategies of Fouling Propensity and Reverse Ion Diffusion of Polyamide Forward Osmosis Composite Membrane".
  Advisors: Pro. Jun Ma and Pro. Menachem Elimelech.
  (*Summa Cum Laude*)
- **M.Sc. 2010. Municipal Engineering, Harbin Institute of Technology.**
  Title of M.Sc. Dissertation: "Study on Emergency Treatment Process for Chlorothalonil Pollution in Raw Water by Powdered Activated Carbon Adsorption and Enhanced Coagulation".
- **B.Sc. 2008. Water Supply and Drainage Engineering, Chongqing University.**
  Overall GPA: 3.95 (Rank 1/87); Major Courses: 4.0 (Rank 1/87).
  (*Summa Cum Laude*)

## Research Experience

- **Dec. 2011 – Dec. 2013. Visiting Assistant in Research, Yale University.**
  Worked on osmotically-driven membrane processes. We developed an in situ surface modification method to fabricate anti-fouling forward osmosis membrane. We also studied the effect of support layer properties on the fouling propensity of the active layer.
- **Oct. 2010 – Nov. 2010. Research Associate, HIT.**
  Water Supply Safety Guarantee Program for the 16th Asian Games, Guangzhou, China.
  I worked on optimization of water purification process for heavy metal removal in local municipal water treatment plants.
- **Feb. 2009 – Jun. 2010. Research Associate, HIT.**
  National High Technology Research and Development Program of China --- Purification Process for Emergency Pollution in Raw Water.
  I joint the program and conducted both lab-scale and pilot-scale experiments on emergency treatment process for the pesticide pollutants.
- **Mar. 2007 – Mar. 2008. Research Associate, Chongqing University.**
  Innovative Foundation Project for Undergraduate Student of Chongqing University

I was leader of the research group. And we conducted some preliminary researches on algae control in lake area.

- **Jul. 2006 – Sep. 2006. Research Assistant, Chongqing University.**
  A Willingness-to-pay Survey and Study for Water Tariff Reform in the Western Chongqing region for the World Bank.
  My job involved data collection and the final report preparation.

## Prizes & Awards

- **2015** Gao Tingyao Distinguished Doctoral Student Award, Tongji University, Shanghai, China
- **2015** First Prize of the Organo (Water and Environment) Award, Chinese Academy of Science
- **2015** The Academician Tang Xiaoyan Excellent Environmental Science Graduate Student Award, Peking University, China
- **2015** Graduate Student Travel Award, Harbin Institute of Technology
- **2014** Excellent Graduate Student Award, Provincial Government of Heilongjiang, China
- **2014** Excellent Graduate Student Award, Harbin Institute of Technology
- **2013** National Excellent Graduate Student Fellowship, Ministry of Education China
- **2008** First-level Graduate Fellowship, Harbin Institute of Technology
- **2008** Outstanding Graduate Award for Bachelor Degree, Chongqing University
- **2008** Second Prize, College Student Innovative Project, Chongqing University
- **2007** Second Prize, National College Students English Competition, Ministry of Education, China
- **2006** Third Prize, 4$^{th}$ Program Design Competition, Chongqing University
- **2005** Excellent College Student, Chongqing University
- **2005** First-level Undergraduate Fellowship, Chongqing University

# Journal Publications

- **Lu, X.**, Arias Chavez, L.H., Romero-Vargas Castrillón, S., Ma, J., and Elimelech, M. "Effect of Polyamide Roughness on the Fouling Propensity of Thin-Film Composite Forward Osmosis Membranes: the Role of Underlying Support Layer Surface Properties", ***Environmental Science & Technology***. 2015, *49* (3), 1436–1444.

- **Lu, X.**, Boo, C., Ma, J., and Elimelech, M. "Bidirectional Diffusion of Ammonium and Sodium Cations in Forward Osmosis: Role of Membrane Active Layer Surface Chemistry and Charge ", ***Environmental Science & Technology***. 2014, *48* (24), 14369–14376.

- **Lu, X.**, Romero-Vargas Castrillón, S., Shaffer, D.L., Ma, J., and Elimelech, M. "In Situ Surface Chemical Modification of Thin-Film Composite Forward Osmosis Membranes for Enhanced Organic Fouling Resistance", ***Environmental Science & Technology***. 2013, *47* (21), 12219–12228.

- **Lu, X.**, Nejati, S., Choo, Y., Osuji, C., Ma, J., and Elimelech, M. “Elements Provide a Clue: Nanoscale Characterization of Thin-Film Composite Polyamide Membranes”, ***ACS Applied Materials & Interfaces***. 2015, 7, 16917–16922.

- Yang, Y., Jiang, J., **Lu, X.**, Ma, J., and Liu, Y. "Production of Sulfate Radical and Hydroxyl Radical by Reaction of Ozone with Peroxymonosulfate: A Novel Advanced Oxidation Process", ***Environmental Science & Technology***. 2015, *49* (12), 7330–7339.

- Ben-Sasson, M., **Lu, X.**, Bar-Zeev, E., Zodrow, K.R., Nejati, S., Qi, G., Giannelis, E.P., and Elimelech, M. “In Situ Formation of Silver Nanoparticles on Thin-Film Composite Reverse Osmosis Membranes for Biofouling Mitigation”, ***Water Research***. 2014, 62, 260–270.

- Romero-Vargas Castrillón, S., **Lu, X.**, Shaffer, D.L., and Elimelech, M. "Amine Enrichment and Poly(ethylene glycol) (PEG) Surface Modification of Thin-Film Composite Forward Osmosis Membranes for Organic Fouling Control", ***Journal of Membrane Science***. 2014, 450, 331–339.

- S., Shaffer, Romero-Vargas Castrillón, D.L., Jaramillo, H., **Lu, X.**, and Elimelech, M. "Post-fabrication modification of forward osmosis Membranes with a poly(ethylene glycol) block copolymer for improved organic fouling resistance", ***Journal of Membrane Science***. 2015, 490, 209–219.

- Flore, J., Joung, Y. S., Kinsinger, N., **Lu, X.**, Bui, C.R., Walker, S. "Antimicrobial Behavior of Novel Surfaces Generated by Electrophoretic Deposition and Breakdown Anodization", ***Colloids and Surfaces B: Biointerfaces***. 2015, 134, 204–212.

- Ben-Sasson, M., **Lu, X.**, Nejati, S., and Elimelech, M. "Functionalization of TFC-RO Membrane Surface with Biocidal Copper Nanoparticles Formed by In Situ Chemical Reduction", ***Desalination***. 2016, 388, 1-8.

- Lu, D., Cheng, W., Zhang, T., **Lu, X.**, Liu, Q., Jiang, J., Ma, J. "Hydrophilic $Fe_2O_3$ dynamic membrane mitigating fouling of support ceramic membrane in ultrafiltration of oil/water emulsion", ***Separation and Purification Technology***. 2016, 165, 1-9.

## Conference Proceedings

- **Lu, X.**, Ma, J., and Elimelech, M. "Tailored Fabrication of Dual Active Layers on Membranes for Osmotically Driven Membrane Processes". ***Gordon Research Conference and Seminar "Membranes: Materials and Processes"***. Colby-Sawyer College, New London, NH, USA. Jul. 28–Aug. 3, 2012. (Poster Presentation).

- **Lu, X.**, R.V. Castrillón, R., Shaffer, D. L., Ma, J., and Elimelech, M. "Forward Osmosis Membrane Surface Modification by In Situ Peg-Ylation for Enhanced Organic Fouling Resistance". ***23th Annual Meeting of the North-American-Membrane-Society***, Boise, ID, USA. June 8–12, 2013. (Oral Presentation).

- Romero-Vargas Castrillón, S., **Lu, X.**, Shaffer, D. L., and Elimelech, M. "Surface Modification of Forward Osmosis Membranes for Improved Fouling Resistance". ***Aiche Annual Meeting,*** San Francisco, CA, USA. Nov. 3–8, 2013.

- **Lu, X.**, Arias Chavez, L. H., Romero-Vargas Castrillón, S., Ma, J., and Elimelech, M. "Influence of Polyamide Morphology on the Fouling Propensity of Thin-Film Composite Forward Osmosis Membranes: Importance of the Underlying Support Layer Surface Structure ", ***24th Annual Meeting of the North-American-Membrane-Society***, Houston, TX, USA. June 1–4, 2014. (Oral Presentation).

- **Lu, X.**, Arias Chavez, L. H., Romero-Vargas Castrillón, S., Ma, J., and Elimelech, M. "Effect of Polyamide Morphology on the Fouling Propensity of Thin-Film Composite Forward Osmosis Membranes: Role of the Underlying Support Layer Surface Structure", ***24th Annual Meeting of the North-American-Membrane-Society***, Houston, TX, USA. June 1–4, 2014. (Poster Presentation).

- Shaffer, D.L., Romero-Vargas Castrillón, S., **Lu, X.**, Jaramillo, H., and Elimelech, M. "Modification of Forward Osmosis Membranes with Jeffamine for Improved Resistance to Organic Fouling", ***24th Annual Meeting of the North-American-Membrane-Society***, Houston, TX, USA. June 1–4, 2014.

- **Lu, X.**, Arias Chavez, L. H., Romero-Vargas Castrillón, S., Ma, J., and Elimelech, M. "Effect of Polyamide Morphology on the Fouling Propensity of TFC FO Membranes: Role of the Underlying Support Layer Surface Structure". ***Gordon Research Conference and Seminar "Membranes: Materials and Processes"***. Colby-Sawyer College, New London, NH, USA. Jul. 5–Jul. 11, 2014. (Poster Presentation).

- **Lu, X.**, Boo, C., Ma, J., and Elimelech, M. "Bidirectional Diffusion of Ammonium and Sodium Cations in Forward Osmosis: Role of Membrane Active Layer Surface Chemistry and Charge", ***2nd International Conference on Desalination using Membrane Technology***, July 26–29, 2015, Singapore. (Oral presentation, invited as a session chair)