

Kira J. M. Matus

EDUCATION

John F. Kennedy School of Government, Harvard University, Cambridge, MA

PhD in Public Policy, June 2009

Concentration: Innovation for Sustainable Development

Dissertation: “Green Chemistry: A Study of Innovation for Sustainable Development”

Thesis Committee: Dr. William C. Clark (chair), Dr. William Hogan, Dr. Venkatesh Narayanamurti, Dr. Paul Anastas (reader)

Massachusetts Institute of Technology, Cambridge, MA

S.M. Engineering Systems Division- Technology Policy Program, June 2005

Thesis “Health Impacts from Urban Air Pollution in China: The Burden to the Economy and the Benefits of Policy”; Advisor: Dr. John Reilly

Symposium: Intensive Program on Sustainable Development (University of Tokyo and Asian Institute of Technology), Chonburi, Thailand; August 2004.

Brown University, Providence, RI

Sc.B. with Honors in Chemistry, May 2003

Honors: Magna Cum Laude, Phi Beta Kappa, Sigma Xi

Awards: Clapp Prize (Best Senior Honors Thesis in Chemistry), Cross Prize for Extraordinary Potential for Achievement in Physical Chemistry.

Research:

- “Molecular Thermometers: Modeling the Vibrational Relaxation in Carbon Tetrachloride”; Advisor: Dr. Richard Stratt
- “Evaluation of Japanese Knotweed as a Phytoremediator in the Woonasquatucket River Basin”; Advisor: Dr. James Baird

FELLOWSHIPS AND AFFILIATIONS

- EPA STAR Fellow, 2007-2010
- Affiliate, Center for Green Chemistry and Engineering at Yale University, 2007-present
- Doctoral Fellow in Sustainability Science, Center for International Development, 2008-2009
- Giorgio Ruffolo Doctoral Fellow in Sustainability Science, Center for International Development, 2007-2008
- Pre-doctoral Fellow, Center for International Development; Science, Environment and Development Group, 2005-2007
- Vicki Norberg-Bohm Fellow, 2006

PUBLICATIONS:

Accepted by the National Academies of Sciences:

Matus, Kira JM. *Standardization, Certification and Labeling: Lessons from Theory and Practice*. Prepared for the NAS Roundtable on Sustainability’s “Workshop on the Certification of Sustainable Products and Services,” January 19-21, 2009.

Matus, Kira JM. *The ACS Green Chemistry Institute®: A Case Study of Partnerships to Promote Sustainability in the Chemical Enterprise*. Prepared for the NAS Roundtable on Sustainability Symposium “Partnerships for Sustainability: Examining the Evidence,” June 18-19, 2008.

In Print:

Andersson, Krister, Michael Burns, Marcel Bursztyrn, Adam Douglas Henry, Ann Laudati, Kira Matus, and Elizabeth McNie. 2008. The Ruffolo Curriculum on Sustainability Science: 2008 Edition. CID Graduate Student and Research Fellow Working Paper No. 32. Center for International Development at Harvard University, December 2008.

Matus, Kira J.M., Trent Yang, Sergey Paltsev, John Reilly, and Kyung-Min Nam. *Economic benefits of air pollution regulation in the USA: an integrated approach*, *Climatic Change*, 88:59–92 (2008).

Matus, Kira J. M., Paul T. Anastas, William C. Clark, and Kai Itameri-Kinter. “Overcoming the Challenges to the Implementation of Green Chemistry.” CID Working Paper No. 155. Center for International Development at Harvard University, December 2007.

Yang, Trent, Kira Matus, Sergey Paltsev, and John Reilly. *Air Pollution Health Effects: Towards an Integrated Assessment*. Joint Program on the Science and Policy of Global Change. Report 113 (update July 2004).

Graham, Polly B., Kira JM Matus and Richard M. Stratt, *The workings of a molecular thermometer: The vibrational excitation of carbon tetrachloride by a solvent*. *J. Chem. Phys.* **121**, 5348 (2004).

Presentations:

Pulling down the Barriers: Lessons from Local and International Variations in Green Chemistry Policy; 12th Annual Green Chemistry and Engineering Conference, Washington, D.C., June 2008.

From red light to green light: Policies to advance green chemistry; 235th American Chemical Society National Meeting, New Orleans, LA, April 2008 (poster).

You are what you measure: Key considerations in the creation of green metrics; 234th American Chemical Society National Meeting, Boston, MA, August, 2007.

Moving beyond barriers: actions and policies to promote green chemistry; 11th Annual Green Chemistry and Engineering Conference, Washington, D.C., June 2007.

Exploring the Barriers to the Implementation of Green Chemistry in the United States; 8th International Symposium on Green Chemistry in China, Beijing, China, May 2007.

Challenge and Change: Exploring the barriers to the implementation of green chemistry in the United States; 233rd American Chemical Society National Meeting, March 2007 (poster).

EXPERIENCE

Green Chemistry Institute

Current

Research Assistant (Contractor)

- Support the Harvard-Green Chemistry Institute Green Chemistry Initiative through fundamental research activities, including literature review and drafting of background documents.
- Conduct primary research, including interviews with key industry players and the identification of key topical areas.
- Help plan and implement workshops, including putting together and distributing background documents, identifying and interviewing workshop participants, and facilitating workshop discussion panels.

Harvard University

2007-2009

Teaching Fellow, Introduction to Environmental Science and Public Policy (ESPP 10)- 2007,2008

Teaching Fellow, Managing a Living Planet (IGA 104)- 2009

- Conducted discussion sections to build on lectures and assignments for groups of 8-10 students.
- Developed and delivered lectures for problem sessions on complex adaptive systems and agent-based modeling.
- Provided detailed feedback and grading for written assignments, including memos and final papers.
- Helped with course development, including input on content for case-based units, identification and dissemination of reading materials, and creation of assignments and grading schema.
- Responsible for course web-pages.

InBoxer, Inc.

2003-2006

Research Director (Part-time)

- Developed methodology for creation of quantitatively and statistically rigorous language models for use in email filtering.
- Performed data analysis and evaluations for presentation to customers and the media.
- Demonstrated upcoming products and explained technical features to prospects, potential investors and the media at the prestigious DEMO conference in Scottsdale, Arizona (February 2005).

MIT Joint Program for the Science and Policy of Global Change

2003-2005

Research Assistant

- Member of research team focused on the quantitative analysis of domestic and international policies related to climate change. Work involved policy evaluation using an integrated global systems model (IGSM) with climate, chemistry, terrestrial and economic components.
- Researched and designed techniques for modeling urban population growth and spatial distribution for use in the economic component of the IGSM, the MIT Emissions Prediction and Policy Analysis (EPPA) model.
- Created a model within the MIT EPPA model to calculate the economic costs of urban air pollution due to adverse health effects, concentrating on China and the United States.

Paul Linet for State Representative (37th Middlesex District, MA)

2002

Campaign Manager

- Responsible for all aspects of the campaign, including strategy, organization, fundraising and community events.
- Oversaw the campaign office; organized the daily schedule of the candidate.
- Coordinated volunteer activities for all six towns in the district.

Kira Matus

Chemist

- Developed analytical protocol for the determination of the chiral purity of ^{15}N labeled lysine to 99.95% chemical purity in order to improve overall product quality and control.
- Oversaw the separation and purification of seventeen different labeled amino acids from an algal hydrolysate mixture.

MEMEBERSHIPS AND ORGANIZATIONS

- Phi Beta Kappa
- Sigma Xi, Associate Member
- American Chemical Society