

COURTNEY NGAI

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EDUCATION

- 2017 Ph.D. Chemistry
University of Massachusetts Boston, Department of Chemistry
Biological Chemistry Track
Dissertation: Characterizing chemical identity thinking
- 2011 B.S. Biochemistry
University of Delaware, Department of Chemistry & Biochemistry

PROFESSIONAL EXPERIENCE

- 2019 – present *Research Scientist*
The Institute for Learning and Teaching
Colorado State University
- 2019 – present *Consultant*
Innovative Learning Center
- 2017 – 2019 *Postdoctoral Fellow*
The Institute for Learning and Teaching
Colorado State University
- 2011 – 2012 *Implementation Specialist Intern*
Agilent Technologies

PEER-REVIEWED PUBLICATIONS

- Quan, G. M.; Corbo, J. C.; Finkelstein, N. D.; Pawlak, A.; Falkenberg, K.; Geanious, C.; **Ngai, C.**; Smith, C.; Wise, S.; Pilgrim, M. E.; Reinholz, D. L. Designing for institutional transformation: Six principles for department-level interventions. *Physical Review Physics Education Research*. **2019**. DOI: 10.1103/PhysRevPhysEducRes.15.010141
- Reinholz, D. L., **Ngai, C.**, Quan, G., Pilgrim, M. E., Corbo, J. C., & Finkelstein, N. Fostering sustainable improvements in science education: An analysis through four frames. *Science Education*. **2018**. DOI: 10.1002/sce.21526

Reinholz, D.; Pilgrim, M.E.; Falkenberg, K.; **Ngai, C.**; Quan, G.; Wise, S.; Geanious, C.; Corbo, J.; Finkelstein, N. Departmental Action Teams: A five-year update on a model for sustainable change. *Reinvention Collaboration*, **2018**.

Ngai, C.; Sevia, H. Probing the relevance of chemical identity thinking in biochemical contexts. *CBE-Life Sci. Educ.* **2018**, 17(4), ar58, 1-12. DOI: 10.1187/cbe.17-12-0271

Sevia, H.; Hugi-Cleary, D.; **Ngai, C.**; Wanjiku, F.; Baldoria, J.M. Comparison of Learning in Two Context-based University Chemistry Classes. *Int. J. Sci. Educ.* **2018**, 40(10), 1239-1262. DOI: 10.1080/09500693.2018.1470353

Clinchot, M; **Ngai, C.**; Huie, R; Talanquer, V; Lambertz, J; Banks, G; Weinrich, M; Lewis, R; Pelletier, P; Sevia, H. Better Formative Assessment. *The Science Teacher*. **2017**, 69-75.

Ngai, C.; Sevia, H. Capturing Chemical Identity Thinking. *J. Chem. Educ.*, **2017**, DOI: 10.1021/acs.jchemed.6b00387

Banks, G., Clinchot, M., Cullipher, S., Huie, R., Lambertz, J., Lewis, R., **Ngai, C.**, Sevia, H., Sztejnberg, G., Talanquer, V., Weinrich, M. Uncovering Chemical Thinking in Students' Decision Making: A Fuel-Choice Scenario. *J. Chem. Educ.*, **2015**, 92(10), 1610-1618.

Sevia, H.; **Ngai, C.**; Sztejnberg, G.; Brenes, P.; Arce, H. Concepción de la identidad química en estudiantes y profesores de química: Parte I-La identidad química como base del concepto macroscópico de sustancia. *Educación química*, **2015**, 26, 13-20.

Ngai, C.; Sevia, H.; Talanquer, V. What is this substance? What makes it different? Mapping progression in students' assumptions about chemical identity. *Int. J. Sci. Educ.*, **2014**, 36, 2438-2461.

Sztejnberg, G.; Balicki, S.; Banks, G.; Clinchot, M.; Cullipher, S.; Huie, R.; Lambertz, J.; Lewis, R.; **Ngai, C.**; Weinrich, M; Talanquer, V.; Sevia, H. Collaborative Professional Development in Chemistry Education Research: Bridging the Gap between Research and Practice. *J. Chem. Educ.*, **2014**, 91, 1401-1408.

WORK IN PROGRESS

Ngai, C.; Pilgrim, M. E.; Reinholz, D. L.; Corbo, J. C.; Quan, G. M. (accepted) Developing the DELTA: Capturing cultural changes in STEM departments. *CBE-Life Sciences*.

Ngai, C.; Corbo, J. C.; Falkenberg, K.; Geanious, C.; Quan, G. M.; Pawlak, A.; Pilgrim, M.E.; Reinholz, J.C.; Smith, C.; Wise, S. *Facilitating Change in Higher Education: The Departmental Action Team Model*. (book)

Ngai, C.; Corbo, J. C.; Quan, G. M. (accepted) Developing the DAT Theory of Change.
Transforming Institutions: Accelerating Systemic Change in Higher Education.

AWARDS AND SCHOLARSHIPS

- August 2019 Commitment to Campus Professional Development Award – Colorado State University
Awarded funds to travel to the Professional and Organizational Development (POD) 2019 conference to conduct a workshop on facilitation and disseminate research findings from the DAT project
- September 2016 Young Chemists Crossing Borders (YCCB) Program Participant – ACS
Awarded funds to travel to a top European chemistry conference (EuCheMS) as part of the YCCB program for the Northeastern Section of the American Chemical Society (ACS)
- May 2016 Sanofi Genzyme Doctoral Research Fellowship – University of Massachusetts Boston
Funds awarded by Sanofi Genzyme to selected graduate students to focus exclusively on research during the academic year
- June 2014 Green Chemistry Gordon Research Conference Travel Award – GRC
Awarded funds to travel to and present a poster at the Green Chemistry Gordon Research Conference in Hong Kong, HK
- September 2012 Distinguished Graduate Fellowship – University of Massachusetts Boston
Awarded as an entry graduate student to the Chemistry department at the University of Massachusetts Boston, provided research assistantship funds for 1st and 5th year
- May 2011 Quaesita Drake Scholarship Recipient – University of Delaware
Recognized as an academically strong female student in the department of chemistry

PRESENTATIONS OF SCHOLARLY WORK

- November 2019 C. Ngai, K. Falkenberg, J. Corbo, D. Reinholz. “DATs: Facilitated teams supporting change in departmental structures and culture.” Interactive workshop. Professional and Organizational Development Network in Higher Education annual conference, Pittsburgh, PA.
- June 2019 C. Ngai, et al. “Characterizing (to promote and sustain) change: The departmental action team (DAT) theory of change.” Poster presentation.

Gordon Research Conference on Chemistry, Education, Research and Practice, Lewiston, ME.

- April 2019 C. Ngai, D. Reinholz. "Characterizing departmental culture and assessing change with the DELTA survey." Oral presentation. Transforming Institutions, Pittsburgh, PA.
- September 2016 C. Ngai, H. Sevian. "Examining the link between chemical identity thinking and biochemical contexts." Oral presentation. ECRICE, Barcelona, Spain.
- September 2016 C. Ngai, H. Sevian. "How students classify and differentiate substances: characterizing chemical identity thinking." Oral keynote presentation. EuCheMS, Seville, Spain.
- August 2016 C. Ngai, H. Sevian. "Exploring the relevance of chemical identity in biochemical contexts." Oral presentation. ACS Fall National Meeting, Philadelphia, PA.
- June 2015 C. Ngai, H. Sevian. "Understanding how students identify and distinguish substances: Development of the Chemical Substance Identification (CSI) Survey." Poster presentation. Gordon Research Conference on Chemistry, Education, Research and Practice, Lewiston, ME.
- August 2014 C. Ngai, H. Sevian. "Chemical Identity: What is this substance?" Poster presentation. Gordon Research Conference on Green Chemistry, Hong Kong, China.
- July 2014 C. Ngai, H. Sevian and V. Talanquer. "This Substance vs. That Substance: Exploring Chemical Identity," Oral presentation. International Conference on Chemistry Education, Toronto, ON, Canada.

INVITED TALKS

- 2019 C. Ngai. "Changing for good: the Departmental Action Team (DAT) model." Departmental seminar, University of Northern Colorado. March 30, 2019.
- 2017 C. Ngai. "An Investigation of Chemical Identity Thinking." Departmental seminar, University of Colorado Boulder, Colorado. November, 2017.

TEACHING EXPERIENCE

- 2018 Colorado State University
Instructor – MCAT General Chemistry review course

2013 – 2015 University of Massachusetts Boston
Teaching Assistant for General Chemistry labs

2014 University of Massachusetts Boston
Teaching Assistant for Problem-Based Learning activities for chemistry
majors freshman seminar

2010 University of Delaware
Problem-based Learning Tutor – Intro to Biochemistry course

RESEARCH EXPERIENCE

2017 – present Colorado State University
Departmental Action Team (DAT) Project

2012 – 2017 University of Massachusetts Boston
Chemical Thinking Learning Progression (CTLP) Project

SYNERGISTIC ACTIVITIES

2018 – present Public Outreach Committee Chair – International Younger Chemists
Network

2018 – present Reviewer for Chemistry Education Research and Practice

2018 – present Board member – Younger Chemistry Education Scholars

2014 – present Reviewer for Journal of College Science Teaching

2015 – 2018 Grant Writer – i-Trek, Cambridge, MA

2013 – 2017 ACS Science Coach – Boston, MA

2011 – 2012 Creative Mentor – Wilmington, DE

PROFESSIONAL ORGANIZATIONS

2019 – present Professional and Organizational Development (POD) Network in
Higher Education

2017 – present International Younger Chemists Network (IYCN)

2012 – present American Chemical Society (ACS)

2012 – present ACS Division of Chemical Education