**Peer-Reviewed Journal Articles**

**Kaldaras, L**., Akaeze, H., & Krajcik, J. (in press). A Methodology for Determining and Validating Latent Factor Dimensionality of Complex Multi-Factor Science Constructs. Educational Assessment. DOI: 10.1080/10627197.2021.1971966

**Kaldaras**, Leonora, Hope Akaeze, and Joseph Krajcik. "Developing and validating Next Generation Science Standards‐aligned learning progression to track three‐dimensional learning of electrical interactions in high school physical science." *Journal of Research in Science Teaching* 58.4 (2021): 589-618. <https://doi.org/10.1002/tea.21672>

Richmond, Gail, Joyce Parker, and Leonora **Kaldaras**. "Supporting Reform-Oriented Secondary Science Teaching Through the Use of a Framework to Analyze Construction of Scientific Explanations." *Journal of Science Teacher Education* (2016): 1-17. <https://doi.org/10.1007/s10972-016-9470-7>

Zheng, D., **Kaldaras**, L., & Lu, H. P. (2013). Total Internal Reflection Fluorescence Microscopy Imaging-Guided Confocal Single-Molecule Fluorescence Spectroscopy. *Biophysical Journal*, *104*(2), 372a. Paper selected for cover publication by [Cell Press](https://www.cell.com/biophysj/pdf/S0006-3495%2812%2903313-9.pdf).

Zheng, D., **Kaldaras**, L., & Lu, H. P. (2012). Total internal reflection fluorescence microscopy imaging-guided confocal single-molecule fluorescence spectroscopy. *Review of Scientific Instruments*, *83*(1), 013110. <https://doi.org/10.1063/1.3677334>

**Articles and Book Chapters in Preparation**

**Kaldaras,** Leonora, Haudek, Kevin, Krajcik, Joseph. “Challenged and Promises of Employing Automatic Analysis Tools Aligned To Learning Progressions To Assess Knowledge Application and Support Deep Learning In STEM”. *Proposal accepted to the anniversary issue in the Journal of the Learning Sciences.*

**Kaldaras**, Leonora, Akaeze, Hope, Krajcik, Joseph. “Developing and Validating an NGSS-Aligned Learning Progression for Chemical Bonding from Perspective of Energy and Force.” *Journal of Research in Science Teaching,* accepted with revisions.

**Kaldaras,** Leonora, Haudek, Kevin. “Validation of Automated Scores for Learning Progression-Aligned Performance Assessments”. *Manuscript under review.*

**Kaldaras,** Leonora. “The Learning Progression Approaches in Science Education”. Invited chapter for the *Handbook of Research on Science Learning Progressions*; Editors: Hui Jin and Joseph Krajcik; Routledge (Taylor & Francis Group).

**Peer-Reviewed Curriculum and Assessment Materials for K-12 Science**

[*“Interactions”*](https://learn.concord.org/interactions) *is NGSS-aligned online curriculum for middle and high school Physical Science.*

CREATE for STEM Institute & The Concord Consortium, (2017).

Unit 1: Why do some clothes stick together when they come out of the dryer? (2014)

First recipient of the [NGSS Digital Design Badge from Achieve](http://www.nextgenscience.org/resources/high-school-interactions-unit-1-why-do-some-clothes-stick-together-when-they-come-out)

* Investigations 1-5**:** Kristin Mayer, Jane Lee, Chanyah Dahsah, Freida Reichsman, Shawn Stevens, **Leonora Kaldaras**, Angela Kolonich, Dan Damelin, Joseph Krajcik
* Assessments**:** Shawn Stevens, **Leonora Kaldaras**, Steven McGee, Freida Reichsman, Dan Damelin, Joseph Krajcik

Unit 2: How does a small spark trigger a huge explosion? (2015)

* Investigations 1 & 2**:** Kristin Mayer, **Leonora Kaldaras**, Shawn Stevens, Angela Kolonich, Dan Damelin, Joseph Krajcik
* Assessments**:** Shawn Stevens, **Leonora Kaldaras**, Steven McGee, Dan Damelin, Joe Krajcik

Unit 3: What powers a hurricane? (2016)

* Investigations 1 & 2: **Leonora Kaldaras**, Kristin Mayer, Shawn Stevens, Angela Kolonich, Dan Damelin, Joseph Krajcik
* Assessments: **Leonora Kaldaras**, Dan Damelin, Joseph Krajcik

Unit 4: Why is temperature of 107 degrees deadly? (2017)

* Investigations 1 & 2: **Leonora Kaldaras**, Angela Kolonich, Dan Damelin, Joseph Krajcik
* Assessments: **Leonora Kaldaras**, Dan Damelin, Joseph Krajcik

**Conference Presentations**

**Kaldaras**, L., Krajcik, J. (2020) “Developing Assessment to Track Knowledge Application in STEM fields”. **Accepted Presentation** at National Science Teacher Association (NSTA) 2020

**Kaldaras**, L., Krajcik, J. (2019) “Exploring protein structure and Function using “Interactions”- a free 3D science curriculum for 9th grade Physical Science”. **Workshop Presentation** at National Science Teacher Association (NSTA) 2019

**Kaldaras**, L., Krajcik, J. (2018) Developing a Learning Progression to Track 3D Learning of Energy in High School Physical Science **Paper Presentation** at the NARST Annual Conference in Atlanta, GA

**Kaldaras**, L., Krajcik, J. (2017) Developing and Empirically Validating Hypothetical Learning Progression for Three-Dimensional Learning of Electrical Interactions. **Related Paper Presentation** Titled: *The Long and Winding Road to NGSS Implementation.* At the NARST Annual Conference in San Antonio, TX

**Kaldaras**, L., Kolonich, A., Maier, K. (2017) Using Technology Tools to Help Students Bridge Understanding of Macroscopic and Submicroscopic Electrical Interactions. **Paper Presentation** at the AERA Annual Conference in San Antonio, TX

**Kaldaras**, L., Richmond, G. (2016) Analyzing Explanation Construction as a Means of Supporting NGSS-Oriented Secondary Science Teaching. **Paper Presentation**, NARST Annual Conference in Baltimore, MD