

List of Publications

Andreas Lichtenberger

ETH Zürich

ORCID: 0000-0001-7739-3904

Peer-reviewed publications in international scientific journals

Becker, S., Küchemann, S., Klein, P., **Lichtenberger, A.**, & Kuhn, J. (2022). Gaze patterns enhance response prediction: More than correct or incorrect. *Physical Review Physics Education Research* 18, 020107. <https://doi.org/10.1103/PhysRevPhysEducRes.18.020107>

Kokkonen, T., **Lichtenberger, A.**, & Schalk, L. (2022). Concreteness fading in learning secondary school physics concepts. *Learning and Instruction* 77, 101524.

<https://doi.org/10.1016/j.learninstruc.2021.101524>

Küchemann, S., Malone, S., Edelsbrunner, P., **Lichtenberger, A.**, Stern, E., Schumacher, R., Brünken, R., Vaterlaus, A., & Kuhn, J. (2021). Inventory for the assessment of representational competence of vector fields. *Physical Review Physics Education Research* 17, 020126.

<https://doi.org/10.1103/PhysRevPhysEducRes.17.020126>

Donhauser, A., Küchemann, S., Kuhn, J., Rau, M., Malone, S., Edelsbrunner, P., & **Lichtenberger, A.** (2020). Making the Invisible Visible: Visualization of the Connection Between Magnetic Field, Electric Current, and Lorentz Force With the Help of Augmented Reality. *The Physics Teacher* 58, 438. <https://doi.org/10.1119/10.0001848>

Klein, P., **Lichtenberger, A.**, Küchemann, S., Becker, S., Kekule, M., Viiri, J., Baadte, C., Vaterlaus, A., & Kuhn, J. (2020). Visual Attention While Solving the Test of Understanding Graphs in Kinematics: An Eye-tracking Analysis. *European Journal of Physics* 41, 025701. <https://doi.org/10.1088/1361-6404/ab5f51>

Lichtenberger, A., Wagner, C., Hofer, S. I., Stern, E., & Vaterlaus, A. (2017). Validation and Structural Analysis of the Kinematics Concept Test. *Physical Review Physics Education Research* 13, 010115. <https://doi.org/10.1103/PhysRevPhysEducRes.13.010115>

Saratz, N., **Lichtenberger, A.**, Portmann, O., Ramsperger, U., Vindigni, A., & Pescia, D. (2010). Experimental Phase Diagram of Perpendicularly Magnetized Ultrathin Ferromagnetic Films. *Physical Review Letters* 104(7), 077203. <https://doi.org/10.1103/PhysRevLett.104.077203>

Lottermoser, W., Schaper, A. K., Treutmann, W., Redhammer, G., Tippelt, G., **Lichtenberger, A.**, Weber, S.-U., & Amthauer, G. (2006). ^{57}Fe Mössbauer Spectroscopy on Multiwalled Carbon Nanotubes with Metal Filling. *Journal of Physical Chemistry B* 110(20), 9768. <https://doi.org/10.1021/jp061803x>

Book chapter

Lichtenberger, A., Togni, A., Vaterlaus, A. & Zwyssig, A. (2023). Verständnis der Grundkonzepte in Chemie und Physik effektiv fördern. In Schneider, M., Grabner, R., Saalbach, H., & Schalk, L. (Hrsg.), Wie guter Unterricht intelligentes Wissen schafft: Handlungswissen aus der Lehr-Lernforschung (S. 186-198). Kohlhammer.

Doctoral Thesis

Lichtenberger, A. (2017). Enhanced Concept Learning in Kinematics by Means of Formative Assessment (Doctoral dissertation, ETH Zurich, Zurich, Switzerland). <https://doi.org/10.3929/ethz-b-000199260>

Peer-reviewed conference papers and conference contributions

- Wagner, C., Braitsch, D., **Lichtenberger, A.**, & Vaterlaus, A. (2018). Relationship Between Cognitive Ability, Conceptual Knowledge and Conventional Problem Solving. In Finlayson, O. E., McLoughlin, E., Erduran, S. & Childs, P. (Eds.), Electronic Proceedings of the ESERA 2017 Conference. Research, Practice and Collaboration in Science Education. Dublin, Ireland: Dublin City University.
- Wagner, C., **Lichtenberger, A.**, & Vaterlaus, A. (2016). Effect of peer discussions, as part of formative assessment, on learning of physics concepts. In Lavonen, J., Juuti, K., Lampiselkä, J., Uitto, A., Hahl, K., Finlayson, O., & Pinto, R. (Eds.), Electronic Proceedings of the ESERA 2015 Conference. Science education research: Engaging learners for a sustainable future. Helsinki, Finland: European Science Education Research Association.
- Wagner, C., **Lichtenberger, A.**, & Vaterlaus, A. (2015). Kinematics Concepts at Different Representation Levels – a Mutual Information Approach. In Fazio, C. & Sperandeo-Mineo, R. M. (Eds.), Proceedings of the GIREP-MPTL 2014 International Conference, Teaching/Learning Physics: Integrating Research Into Practice. Palermo, Italy: Università degli Studi di Palermo.
- Lichtenberger, A.**, Wagner, C., & Vaterlaus A. (2014). Analysis of Student Concept Knowledge in Kinematics. In Constantinou, C. P., Papadouris, N., Hadjigeorgiou, A. (Eds.), E-Book Proceedings of the ESERA 2013 Conference: Science Education Research for Evidence-based Teaching and Coherence in Learning. Nicosia, Cyprus: European Science Education Research Association.
- ### **Oral contributions to international conferences**
- Lichtenberger, A.**, Schalk, L., & Kokkonen, T. (2022, March). Wie man multiple externe Repräsentationen gewinnbringend im Physikunterricht einsetzt: Resultate zweier Interventionsstudien. Frühjahrstagung der Deutschen Physikalischen Gesellschaft.
- Klein, P., Becker, S., Küchemann, S., **Lichtenberger, A.**, & Kuhn, J. (2021, March). Visuelle Aufmerksamkeit beim Lösen des TUG-K (Diagramm-Test). Frühjahrstagung der Deutschen Physikalischen Gesellschaft.
- Lichtenberger, A.**, Wagner, C., & Vaterlaus, A. (2017, August). Enhanced Concept Learning in Kinematics by Means of Formative Assessment. 17th Biennial Conference of the European Association for Research on Learning and Instruction, Tampere, Finland.
- Wagner, C., **Lichtenberger A.**, & Vaterlaus, A. (2017, August). Relationship Between Cognitive Ability, Conceptual Knowledge and Conventional Problem Solving. 12th Conference of the European Science Education Research Association, Dublin, Ireland.
- Wagner, C., **Lichtenberger, A.** & Vaterlaus, A. (2017, July). Transfer of Conceptual Knowledge to Solve Conventional Problems. GIREP-ICPE-EPEC 2017 Conference, Dublin, Ireland.
- Lichtenberger, A.**, Wagner, C., & Vaterlaus, A. (2016, September). Förderung des Konzeptwissens in Physik durch formatives Assessment. Jahrestagung der Gesellschaft für Didaktik der Chemie und Physik, Zurich, Switzerland.
- Lichtenberger, A.**, Wagner, C., & Vaterlaus, A. (2016, July). Testing Conceptual Knowledge in Kinematics. World Conference on Physics Education, São Paulo, Brazil.
- Lichtenberger A.**, Wagner, C., & Vaterlaus, A. (2015, August). A Comparison between Formative Assessment and Traditional Teaching in Kinematics at High School. 11th Conference of the European Science Education Research Association, Helsinki, Finland.
- Lichtenberger, A.**, Wagner, C., & Vaterlaus, A. (2015, July). Results of the Application of Formative Assessment in Kinematics. GIREP-EPEC 2015 Conference, Wroclaw, Poland.

Lichtenberger, A., Wagner, C., & Vaterlaus, A. (2015, January). Correlation between Mathematics and Physics Concepts in Kinematics. AAPT Winter Meeting 2015, San Diego, USA.

Lichtenberger, A., Wagner, C., & Vaterlaus, A. (2014, July). Correlation between Mathematics and Physics Concepts in Kinematics. GIREP-MPTL 2014 Conference, Palermo, Italy.

Lichtenberger A., Wagner, C., & Vaterlaus, A. (2013, September). Analysis of Student Concept Knowledge in Kinematics. 10th Conference of the European Science Education Research Association, Nicosia, Cyprus.

Lichtenberger, A., Saratz, N., Ramsperger, U., Bähler, T., & Pescia, D. (2009, March). Stripes to bubble transition in Fe/Cu(001) observed using SEMPA in applied magnetic field. Frühjahrstagung der Deutschen Physikalischen Gesellschaft.