

Kary A. Ritter III, Ph.D.

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(a) Education

- Doctorate in Philosophy in Systems Engineering** **2016**
- Mechanical Engineering concentration: University of Louisiana at Lafayette
 - Dissertation: Virtual Solar Energy Center: A Case Study of the Use of Advanced Visualization Techniques for the Comprehension of Complex Engineering Products and Processes
- Masters of Science in Solar Energy Engineering** **2011**
- European Solar Engineering School, Börlange, Sweden
 - Thesis: Needs assessment and financial feasibility evaluation of domestic evacuated tube thermosiphon solar water heaters in Surabaya, Indonesia.
- Bachelors of Science in Mechanical Engineering** **2003**
- Louisiana State University, Baton Rouge, LA
 - Senior Project: LSU Mini-Baja 2002-2003 Team

(b) Publications

- Stone, H., Li, M., Ritter III, K. A., & Chambers, T. L. (2020). Virtual Reality: Authentic and Immersive Learning in the Science Classroom. *International Journal for Innovation Education and Research*, 8(8), 101-111. Available at: <https://ijer.net/ijer/article/view/2498>
- Zappi, M.E.; Zappi, A.; Revellame, E.; Sharp, W.; Fortela, D.L.; Hernandez, R.; Chambers, T.; Ritter, K.; Gang, D., 2020, "An Assessment of the Potential to Produce Commercially Valuable Lipids on Highway Right-of-Way Land Areas Located Within the Southeastern United States," *Sustainability* 2020, 12, 5225. Available at: <https://www.mdpi.com/2071-1050/12/13/5225#>
- K. A. Ritter III, Heather Stone, Terrence L. Chambers, 2019, "Empowering Through Knowledge: Exploring Place-based Environmental Education in Louisiana Classrooms Through Virtual Reality," *Computers in Education Journal*, Vol. 10, Issue 1, March 2019. Available at: http://asee-coed.org/index.php/coed/article/view/RitterIII_Empowering/pdf_31
- Brambles, O., Ritter, K., Johnson, L. McBride, T., Snyder, S., Stettenheim, J., Chambers, T., Rausch, J., "Field Testing of Manufacturable Advanced Low-Cost Receiver for Parabolic Trough Solar Power," *2019 IEEE Green Technologies Conference (GreenTech)*, April, 2019, Lafayette, LA. DOI: 10.1109/GreenTech.2019.8767118. Available at: <https://ieeexplore.ieee.org/document/8767118>
- Ritter, Kenneth A., Borst, Christoph W., Chambers, T.L., (2018), "Virtual Solar Energy Center Case Studies," *ASEE Computers in Education (COED) Journal*, Vol 9, Issue 4,

December 2018 pp. 1 – 7. Available at:

http://asecoed.org/index.php/coed/article/view/Ritter_Virtual

- Ritter III, K. A., Prilliman, M. J., Chambers, T. L., & Raush, J. R. (2018). “Maintenance of a Small-Scale Parabolic Trough Concentrating Solar Power Plant in Louisiana.” *International Journal of Sustainable and Green Energy*, 6(6), 104–111.
<https://doi.org/10.11648/j.ijrse.20170606.12>
- K Ritter, T Chambers, M Prillman, J Raush. (2017). “Measurement and Assessment of Parabolic Trough Mirror Soiling in an Operational CSP Plant in Southeastern United States,” *Proceedings of the ASES National Conference 2017*. doi:10.18086/solar.2017.02.01
- Raush, J., Ritter, K., Prilliman, M., Hebert, M., Pan, Z., Chambers, T. (2018), “Numerical Model and Performance Validation of a Small-Scale Concentrating Solar Thermal Power Plant in Louisiana,” *Journal of Power and Energy Engineering*, 6, pp. 112-140.
https://file.scirp.org/pdf/JPEE_2018092915530288.pdf
- Ritter, K., Raush, J., Chambers, T., & Prillman, M. (2017). “Measurement and Assessment of Parabolic Trough Mirror Soiling in an Operational CSP Plant in Southeastern United States.” *In Proceedings of the SOLAR 2017 Conference* (pp. 1–7).
<https://doi.org/10.18086/solar.2017.02.01>
- Ritter, K.A., Chambers, T.L., Borst, C.W., (2016), “Work in Progress: Networked Virtual Reality Environment for Teaching Concentrating Solar Power Technology,” *Proceedings of the ASEE Annual Conference*, New Orleans, LA, June 26 - 29, 2016.
- Ritter, K.A. III, Chambers, T., (2014), “Educational Gaming and Use for Explaining Alternative Energy Technologies,” *International Journal for Innovation in Education and Research*, Vol. 2-03, 2014, pp. 30–42.

Other Significant Products

- Ritter, K.A. III, “Virtual Solar Energy Center: A Case Study of the Use of Advanced Visualization Techniques for the Comprehension of Complex Engineering Products and Processes”, Dissertation, Univ. of Louisiana at Lafayette, July 2016.
- Borst, C.W., Ritter, K.A., Chambers, T.L., (2016), “Virtual Energy Center for Teaching Alternative Energy Technologies,” *Proceedings of the 2016 IEEE Virtual Reality (VR) Conference*, 157-158.
- Ritter, Chambers, T.L., Borst, C.W., (2016), “Work in Progress: Networked Virtual Reality Environment for Teaching Concentrating Solar Power Technology,” *Proceedings of the ASEE Gulf-southwest Annual Conference*, Texas Christian University, Fort Worth, TX, March 6 - 8, 2016.

(c) Funded Research Grants

- Raush, J., Chambers, T. L., Ritter, K. R., 2018 – 2018, “START Lab Field Test of Sun Trap Receiver,” Norwich Technologies/U.S. Department of Energy/DOE SunShot Solar Manufacturing Technology (SolarMat) 2, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount \$50,228).
- Stone, Heather, Ritter, Kenneth R. III, Chambers, Terrence L., 2018, “Virtual Reality Ecoliteracy Curriculum,” Mozilla Foundation, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount: \$10,000).
- Stone, H., Chambers, T. L. Ritter, K., 2017 – 2018, “Empowering through Knowledge: Exploring Social, Economic, and Environmental Sustainability in Louisiana through Oral History and Virtual Reality,” Board of Regents Support Fund, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount: \$120,000).
- Chambers, T. L., Raush, J., Ritter, K., 2016 – 2019, “UL Lafayette/CLECO Solar Thermal Power Plant and Supplements,” CLECO Power LLC, University of Louisiana at Lafayette, Lafayette, LA, (Funded amount \$2,286,228).

(d) Professional and Technical Skills

- Operating system experience: Advanced in Windows, OS X, iOS, Android, and intermediate in Linux,
- Design software experience: Advanced in 3DS Max Design, Unity 3D, Solidworks, Microsoft Office, and intermediate in C# programming, AutoCAD, MathCAD,
- Energy modeling experience: Advanced in RETScreen, PVSYST, CoDePro, and intermediate with SAM, PolySun, HOMER, and CASAnova

(e) Work Experience

Director of Cleco Alternative Energy Center, University of Louisiana at Lafayette

- Direct alternative energy research projects. **2019 – present**
- Operate and maintain the alternative energy facility.
- Conduct presentations and tours to students, faculty, company representatives, and various delegates.

Senior Research Scientist, University of Louisiana at Lafayette **2016 – 2019**

- Operate and maintain pilot-scale concentrating solar thermal power plant.
- Direct virtual reality and augmented reality research projects in engineering.

Research Assistant, University of Louisiana at Lafayette **2012 - 2016**

- Assisted in advanced visualization and concentrating solar power research.
- Publications: 3 journal articles and 4 conference papers.

Solar Power Installer, Solar Jeff, St. John, U.S. Virgin Islands **2009 – 2010**

- Installed Solar Water Heaters, Pool Heaters, Pool circulation, and Photovoltaics.

Senior Field Engineer, Schlumberger, Bakersfield, CA **2004 –2008**

- Managed logging cell - three operators, logging truck and tools.
- Performed Reservoir Evaluation Wireline jobs onshore and offshore.
- Trained as Specialist in the Magnetic Resonance Expert logging tool.
- Logging software experience: Advanced in O.P., Perfo express, and Warrior.

(f) Synergistic Activities

- Active ASEE member, presenting papers and posters at regional conference and held demonstration at national conference.
- Directed the development of the Virtual Solar Energy Center and the design lab and hold public demonstrations several times a year.
- Solar Energy Society member (ISES), (ASES), and (LSES)

(g) Awards and Organizations

- TOPS Scholarship, Dean's List every semester, Honor Society of Phi Kappa Phi, Designing Leaders Program graduate (2013), Foundation Scholarship recipient(2014), NSF Travel Grant recipient 2015, Solar Energy Society (ISES), (ASES), and (LSES)