

## DARIA A. KOTYS-SCHWARTZ

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**Department of Mechanical Engineering**  
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## RESEARCH INTERESTS

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Design learning in engineering, with focus on engineering learning mechanisms, engineering epistemologies, and engineering diversity and inclusiveness.

## EDUCATION

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**University of Colorado, Boulder, CO** 2001-2007  
Ph.D. Mechanical Engineering, University of Colorado at Boulder  
Dissertation: "Evaluation of the Impact of Interactivity on Student Performance and Attitudes in Engineering."  
Advisor: Lawrence E. Carlson

**The Ohio State University, Columbus, OH** 1998-2001  
M.S. Mechanical Engineering, The Ohio State University  
Thesis: "Improving Plastic Gear Accuracy Through Gas-Assisted Injection Molding."

**The Ohio State University, Columbus, OH** 1992-1998  
B.S. Mechanical Engineering, The Ohio State University

## TEACHING EXPERIENCE

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*8/2019 - Present*      *Teaching Professor;*  
Mechanical Engineering, University of Colorado, Boulder, CO

*6/2015 - 8/2019*      *Senior Instructor*  
Mechanical Engineering, University of Colorado, Boulder, CO

*6/2007 - 6/2014*      *Instructor*  
Mechanical Engineering, University of Colorado, Boulder, CO

*8/2004 - 5/2007*      *Graduate Part Time Instructor*  
Mechanical Engineering, University of Colorado, Boulder, CO

*6/2002 - 5/2005*      *NSF Graduate Teaching Fellow*  
Integrated Teaching and Learning Laboratory, University of Colorado, Boulder, CO

*9/2002 - 5/2004*      *Instructor - Women's Manufacturing Workshop*

Integrated Teaching and Learning Laboratory, University of Colorado,  
Boulder, CO

6/2002 – 7/2004 *Instructor – Introduction to Engineering*  
Pre-Collegiate Development Program and University of Colorado Upward  
Bound, University of Colorado, Boulder, CO

1/2002 – 6/2002 *Substitute Teacher – K-12 Math and Science*  
Denver Public Schools, Denver, CO

9/2000 – 12/2001 *Instructor – Introduction to Parametric Design*  
Mechanical Engineering and Industrial Engineering, The Ohio State  
University, Columbus, OH

9/2000 – 12/2001 *Graduate Teaching Assistant – Introduction to Engineering*  
Industrial Engineering, The Ohio State University, Columbus, OH

## **PROFESSIONAL AND RESEARCH EXPERIENCE**

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6/2014 – Present *Director – Idea Forge*  
College of Engineering and Applied Science, University of Colorado, Boulder,  
CO

6/2012 – Present *Co-Director – Design Center Colorado*  
Mechanical Engineering, University of Colorado, Boulder, CO

6/2008 – 1/2013 *Faculty Director – CMU-CU Mechanical Engineering Partnership Program*  
Mechanical Engineering, University of Colorado, Boulder, CO

8/2005 – 6/2007 *Research Assistant*  
Mechanical Engineering, University of Colorado, Boulder, CO

9/1999 – 12/2001 *Research Assistant*  
Gear Dynamics and Gear Noise Research Laboratory and Integral  
Attachment Program  
The Ohio State University, Columbus, OH

6/1998 – 9/1999 *Advanced Manufacturing Engineer*  
Copeland Corporation, Sidney, OH

6/1996 – 3/1997 *Advanced Manufacturing Engineer and Consultant Intern*  
Copeland Corporation, Sidney, OH

2/1994 – 6/1996 *Undergraduate Research Assistant*  
Center for Automotive Research  
The Ohio State University, Columbus, OH

## **AWARDS AND HONORS**

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2022 *Rudolph J. Joenk Award.* On behalf of the Board Governors of the IEEE  
Professional Communication Society, Daria Kotys-Schwartz and co-authors,  
were selected as the recipients of the The Rudolph J. Joenk, Jr. Award which  
recognizes an outstanding article published in the preceding year's IEEE

Transactions on Professional Communication. The winner is selected by the PCS Editorial Advisory Committee.

- 2021* Outstanding Undergraduate Educators: Co-awarded with Shalon Ruben for work in the classroom and for their efforts to keep project-based learning in the curriculum, during a mostly remote year; Mechanical Engineering, University Colorado Boulder.
- 2020* Outstanding Service Award; Mechanical Engineering, University Colorado Boulder.
- 2019* Promotion to Teaching Professor; Measured by exemplary performance constituting a record of distinction.
- 2017* Marinus Smith Teaching Award; Alumni Association; University of Colorado
- 2017* Department of Mechanical Engineering Design Excellence Faculty Fellow; Mechanical Engineering; University of Colorado Boulder
- 2016* Department of Mechanical Engineering Woodward Outstanding Faculty Award; Mechanical Engineering; University of Colorado Boulder
- 2015* Max S. Peters Faculty Service Award; College of Engineering and Applied Sciences; University of Colorado Boulder
- 2014* ASEE ERM Distinguished Service Award; American Society of Engineering Education; Educational Research Methods Division
- 2013* Boulder Faculty Assembly Faculty Recognition Award. Boulder Faculty Assembly; University of Colorado Boulder
- 2013* Department of Mechanical Engineering Outstanding Service Award; Mechanical Engineering; University of Colorado Boulder
- 2012* National Residence Hall Honorary: Institution Faculty/Staff of the Month, University of Colorado Boulder
- 2011* John & Mercedes Peebles Innovation in Education Award; College of Engineering and Applied Sciences; University of Colorado Boulder
- 2009* Marinum Smith Teaching Award; Alumni Association; University of Colorado
- 2008* Department of Mechanical Engineering Outstanding Undergraduate Educator Award; Mechanical Engineering; University of Colorado Boulder
- 2007* Charles Hutchinson Memorial Teaching Award; College of Engineering and Applied Sciences; University of Colorado Boulder
- 2007* Outstanding Ph.D. Dissertation Award; Mechanical Engineering; University of Colorado Boulder
- 2006* ERM Faculty Apprentice Grant; American Society of Engineering Education; Educational Research Methods Division

2005-2007	Best Lecturer Award; American Society of Mechanical Engineers; Mechanical Engineering; University of Colorado Boulder
2005	Brown/ Ricketts/Udick Grant; American Association of University Women
2005	Multicultural Engineering Program Faculty Appreciation Award; College of Engineering and Applied Sciences; University of Colorado
2004-2005	Graduate Part-Time Instructor Teaching Excellence Award; Graduate School; University of Colorado Boulder
2004	CU Leadership, Excellence, Achievement, and Diversity Alliance (LEAD) Faculty Appreciation Award; University of Colorado Boulder
2004	Residence Hall Teaching Award; University of Colorado Boulder
2004	Sullivan-Carlson Innovation in Teaching Award; College of Engineering and Applied Sciences; University of Colorado Boulder
2002-2005	Doctoral Fellowship, National Science Foundation Graduate Teaching Fellow
2001	Women In Engineering Leadership Award, College of Engineering; The Ohio State University
1995	Industrial Advisory Board Minority Scholarship, The Center for Automotive Research; The Ohio State University
1994	Scarlet and Gray Academic Scholarship; The Ohio State University

## **PUBLICATIONS**

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### **Refereed Journal Articles**

1. Paretti MC, Ford JD, Kotys-Schwartz D, Howe S, Ott R. "Preparing for Engineering Work: Interpersonal Relationships in the School to Work Transition." 2022 IEEE Frontiers in Education Conference (FIE) (2022 IEEE Frontiers in Education Conference (FIE), October 08, 2022 - October 11, 2022): IEEE, October 08, 2022
2. Ford J., Paretti, M., Kotys-Schwartz, D., Howe, S., Ott, R. "New Engineers' Transfer of Communication Activities from School to Work." IEEE Transactions on Professional Communication (2020). 64(2) (published online June 01, 2021): 105-120.  
<https://doi.org/10.1109/TPC.2021.3065854>.
3. Hughes, BE., Schell, WJ., Tallman, B., Sybesma, T., Kwapisz, MB., Annand, E., Ranch, S., Krejci, C., Bozic, C., Kotys-Schwartz, D. "Entering the community of practice: changes in engineering students' engineering identities and perceptions of the field, 2021, European Journal of Engineering Education, 46:6, 968-986, DOI: 10.1080/03043797.2021.1947197.
4. Paretti M, Kotys-Schwartz D, Ford J, Howe S, Ott R. "Leveraging the Capstone Design Experience to Build Self-Directed Learning." International Journal of Engineering Education. 36 (2) (January 01, 2020): 664-674.

5. Schell, W., Hughes, B., Tallman, B., Kwapisz, M., Sybesma, T., Annand, E., Bozic, C., Kotys-Schwartz, D., Krejci, C. "Understanding the Joint Development of Engineering and Leadership Identities." Online: 21 Jul 2021.  
<https://doi.org/10.1080/10429247.2021.1952021>.
6. Lauff, C.A., Knight, D., Kotys-Schwartz, D., Rentschler, M. "The role of prototypes in communication between stakeholders." *Design Studies*, 66 (January 01, 2020): 1-34.  
<https://doi.org/10.1016/j.destud.2019.11.007>
7. Chowdhury M., Knight, D., Kotys-Schwartz, D., Dyke Ford, J., Murzi, H. "Competing Values Framework to Map the Development of Leadership Skills as Capstone Design Students Transition to the Workplace." *Engineering Leadership Development* (2020). **Best Paper Award**.
8. Schell W, Hughes BE, Tallman B, Kwapisz M, Sybesma T, Annand E, Bozic C, Kotys-Schwartz DA, Krejci CC. "Understanding the Joint Development of Engineering and Leadership Identities." *Engineering Management Journal* (July 23, 2021).
9. Lauff, C., Knight, D., Kotys-Schwartz, D., Rentschler, M.E. "The role of prototypes in communication between stakeholders." Department of Mechanical Engineering, University of Colorado Boulder, Engineering Center, Boulder, CO, 80309, United States. Elsevier Ltd.  
<https://doi.org/10.1016/j.destud.2019.11.007>
10. Ford, J., Paretti, M., Kotys-Schwartz, D., Howe, S., Gewirtz, C., "Transitioning from Capstone Design Courses to Workplaces: A Study of New Engineers' First Three Months." *International Journal of Engineering Education*, 35(6):1993-2013. 2019.
11. Novoselich B., Kotys-Schwartz, D., Demoret, M., Nunez, M., Brackin, P., "Considering Capstone Team Member Roles with a Shared Leadership Framework." *International Journal of Engineering Education*, 35(6B): 1937-1952. 2019.
12. Lauff C.A., Weidler-Lewis J, Kotys-Schwartz D., Rentschler M.E. "Prototypes as Intermediary Objects for Design Coordination in First-Year Design Courses." *International Journal of Engineering Education*. 34 (3) (January 01, 2018): 1085-1103.
13. Lauff, C.A., Kotys-Schwartz, D., Rentschler, M.E., "What is a Prototype? What are the roles of Pototypes in Companies?" *Journal of Mechanical Design*, 140 (6) (June 01, 2018): ARTN 061102.
14. Gewirtz, C., Paretti, M., Kotys-Schwartz, D, Knight, D., Hernandez, C., Howe, S., Rosenbauer, L., Ford, J., Alvarez, N., "New Engineers' First Three Months: A Study of the Transition from Capstone Design Courses to Workplaces." *American Society for Engineering Education*, June 24, 2018 - June 28, 2018), June 25, 2018. Best Paper Nominee.
15. Kotys-Schwartz, D., Carlson, L.E. "Evaluation of the Impact of Interactivity on Student Performance and Attitudes in Engineering." *Journal of Engineering Education*. October 2007.

## Popular Press Articles

1. Gonzalez, C. Educating from a Distance. *The American Society of Mechanical Engineers*, Vol. 143, No.1, pgs. 42-47. (Article profiles Dr. Daria Kotys-Schwartz and other CU faculty).
2. Paretto, M.C., Ford, J., Howe, S., Kotys-Schwartz, D. Engineering Capstone Courses Help Students Transition from School to Work. *Research Outreach*. ISSN 2519-701X. Issue 110.
3. Engineering Capstone Courses Help Students Transition From School to Work. M.C. Paretto, J. Ford, S. Howe, and D. Kotys-Schwartz. *Research Outreach*. ISSN 2519-701X. Issue 110.

## Technical Reports

American Society of Engineering Education: Institutionalization Rubric Review Final Report. Froyd, J., Kotys-Schwartz, D. and Zappe, S. May 2018.

## REFEREED CONFERENCE PROCEEDINGS

1. Kotys-Schwartz D, Komarek R, Knight D. "Exploration of role assignment in engineering design teams on leadership." (ASEE 2023, June 25, 2023 - June 28, 2023), June 25, 2023.
2. M. C. Paretto, J. D. Ford, D. Kotys-Schwartz, S. Howe and R. Ott, "Preparing for Engineering Work: Interpersonal Relationships in the School to Work Transition," 2022 IEEE Frontiers in Education Conference (FIE), Uppsala, Sweden, 2022, pp. 1-6, doi: 10.1109/FIE56618.2022.9962508.
3. J. Steinbrenner, Kotys-Schwartz, D., Knight D. "Teams, Tantrums, and Tears: Conflict Resolution in 2020." (2022 Capstone Design Conference, June 06, 2022 - June 08, 2022), June 2022.
4. Cooper L, Kotys-Schwartz D. "Designing the Project-Based Learning Experience using Motivation Theory." (2022 American Society of Engineering Education Annual Conference & Exposition, June 26, 2022 - June 29, 2022), June 28, 2022 (Published online August 23, 2022)
5. M. C. Paretto, D. Kotys-Schwartz, J. Ford, S. Howe, and R. Ott. "The Transfer from Capstone to Work: Insights and Implications." 2022 Capstone Design Conference. In Review.
6. Paretto, M.C., Kotys-Schwartz, D., Ford, J., Howe, S., and Ott, R., "Putting Students to Work: Using Findings from a Multi-University Study of Engineers' First Year of Work to Enhance Design Education." 2021 Proceedings, *American Society for Engineering Education Annual Conference & Exposition*, virtual conference.
7. DEED Workshop Proposal - Putting Students to Work: Using Findings from a Multi-University Study of Engineers' First Year of Work to Enhance Design Education, *2021 ASEE Annual Conference & Exposition*.
8. Paretto, M. C., Kotys-Schwartz, D., Ford, J., Howe, S., Ott, R. (2019, May). Process Matter(s): Leveraging the Design Process to Build Self-Directed Learning. Paper presented at the 2019 Clive L. Dym Mudd Design Workshop.

9. Froyd, J., Zappe, S., Kotys-Schwartz, D. Applying Research on Effective Learning to Designing Courses and Other Learning Opportunities. American Society for Engineering Education (ASEE) 2019 Conference, Tampa, FLA, 33607, June 16-19, 2019.
10. Gewirtz, C., Paretti, M., Kotys-Schwartz, D, Knight, D., Hernandez, C., Howe, S., Rosenbauer, L., Ford, J., Alvarez, N., "New Engineers' First Three Months: A Study of the Transition from Capstone Design Courses to Workplaces." *Proceedings, American Society for Engineering Education 2018 Annual Conference & Exposition*, Salt Lake City, UT.
11. Howe, S., Rosenbauer, L., Ford, J., Alvarez, N., Paretti, M., Gewirtz, C., Kotys-Schwartz, D, Knight, D., Hernandez, C. "Preliminary Results from a Study Investigation the Transition from Capstone Design to Industry." *Proceedings, 2018 Capstone Design Conference*, Rochester, NY.
12. Kotys-Schwartz, D, Knight, D., Steinbrenner, J. "A Qualitative Investigation of Success and Challenges with Team Roles in Capstone Design." *Proceedings, 2018 Capstone Design Conference*, Rochester, NY.
13. Lauff, C.§, Kotys-Schwartz, D., Rentschler, M.E., 2017, "What is a Prototype? Emergent Roles of Prototype from Empirical Work in Three Diverse Companies," *Proceedings of the ASME 2017 IDETC/CIE – Design Theory and Methodology Conference*, Cleveland, OH, August 6-9.
14. Lauff, C.§, Kotys-Schwartz, D., Rentschler, M.E., 2017, "Perceptions of Prototypes: Pilot Study Comparing Students and Professionals," *Proceedings of the ASME 2017 IDETC/CIE – Design Education Conference*, Cleveland, OH, August 6-9.
15. Paretti, M., Kotys-Schwartz, D., Howe, S., Ford, J., "Collaborative Research: From School to Work: Understanding the Transition from Capstone Design to Industry" *Proceedings*, Page 5 of 29 *American Society for Engineering Education 2017 Annual Conference & Exposition*, Columbus, OH.
16. Knight, D., Kotys-Schwartz, D. "Further Along the Engineering Pathway: The Impact of Design Spaces on the Development of Engineering Student " *Proceedings, The International Research in Engineering Education Symposium*, Bogota, Columbia.
17. Komarek, B., Knight, D., Kotys-Schwartz, D. "Assessment of a Cross-Disciplinary University Startup Accelerator" *Proceedings, American Society for Engineering Education 2016 Annual Conference & Exposition*, New Orleans, LA.
18. O'Connor, K., Lauff, C., Kotys-Schwartz, D., Rentschler, M.E., "Learning and Identity at the Nexus of Practice: Mediated Discourse Analysis as a Methodology for Engineering Education Research," *Proceedings, American Society for Engineering Education 2015 Annual Conference & Exposition*, Seattle, WA.
19. Lauff, C., Kotys-Schwartz, D., O'Connor, K., Rentschler, M., "Comparing Organizational Structures: Two Case Studies of Engineering Companies" and What We Can Learn From This" *Proceedings, American Society for Engineering Education 2015 Annual Conference & Exposition*, Seattle, WA.

20. Tsai, J.<sup>§</sup>, Kotys-Schwartz, D., Knight, D., "Introducing Actor-Network Theory Via the Engineering Sophomore Year" *Proceedings, American Society for Engineering Education 2015 Annual Conference & Exposition*, Seattle, WA.
21. O'Connor, K., Peck, F., Cafarella, J., Lauff, C., Kotys-Schwartz, D., Rentschler, M.E., McWilliams, J. "Ideologies of Depoliticization in Engineering Education: A Mediated Discourse Analysis of Student Presentations in a First-year Projects Course," *Proceedings, American Society for Engineering Education 2015 Annual Conference & Exposition*, Seattle, WA.
22. Sullivan, J., Myers, B., O'Connor, K., Peck, F., Ennis, T., Sites, N., Louie, B., Cafarella, J., Kotys-Schwartz, D. "Continuously Improving a Diversity-Bolstering System through Integrating Quantitative and Qualitative Engineering GoldShirt Program Facets," *Proceedings, American Society for Engineering Education 2015 Annual Conference & Exposition*, Seattle, WA.
23. Tsai, J.<sup>§</sup>, Kotys-Schwartz, D., Knight, D., "What's Fair in Sophomore Engineering Mathematics Course? Investigating Exams From an Actor-Network Perspective" *Proceedings, 2015 Mid Year Engineering Education Conference*, College Station, TX.
24. Tsai, J.<sup>§</sup>, Kotys-Schwartz, D., Knight, D., "New Perspectives to Investigate the Politics of Education in Engineering Cultures" *Proceedings, American Society for Engineering Education 2015 Rocky Mountain Section Conference*, Denver, CO.
25. Lauff, C., Kotys-Schwartz, D., O'Connor, K., Rentschler, M., "How Design is Organized: A Preliminary Study of Spatiotemporal Organization in Engineering Design" *Proceedings, 2014 Frontiers in Education Conference*, Madrid, Spain.
26. Tsai, J.<sup>§</sup>, Kotys-Schwartz, D., Knight, D., "The Powerful Construction of Norms Within Sophomore Engineering" *Proceedings, 2014 Frontiers in Education Conference*, Madrid, Spain. October 2014.
27. Lauff, C., O'Connor, K., Kotys-Schwartz, D., Rentschler, M., "Undergraduate to Professional Engineering Design: A Disconnected Trajectory?" *2014 Proceedings, American Society for Engineering Education Zone IV Conference*, Long Beach, CA.
28. Levonisoa, S., Huang, S., Streiner, S., Cunningham, S., Ragusa, G., Besterfield-Sacre, M., Shuman, L., Matherly, C., Kotys-Schwartz, D., "Moving Toward a Research Informed Conceptual Model of Engineering Global Preparedness" *Proceedings, American Society for Engineering Education 2014 Annual Conference & Exposition*, Indianapolis, IN.
29. Streiner, S., Cunningham, S., Levonisoa, S., Huang, S., Matherly, C., Besterfield-Sacre, M., Shuman, L., Ragusa, G., Kotys-Schwartz, D., "Exploring Engineering Education in Broader Context: A Framework of Engineering Global Preparedness" *Proceedings, American Society for Engineering Education 2014 Annual Conference & Exposition*, Indianapolis, IN.
30. Kotys-Schwartz, D., Knight, D., Daly, S., Yilmaz, S., "Evaluating the Implementation of Design Heuristic Cards in an Industry Sponsored Capstone Design Course" *Proceedings, American Society for Engineering Education 2014 Annual Conference & Exposition*, Indianapolis, IN.
31. Knight, D., Kotys-Schwartz, D., "Once Again Around the Double Triangle: A Multi-Rater Assessment of Capstone Design Skills" *Proceedings, 2013 Frontiers in Education*

- Conference, Oklahoma City, Oklahoma. Kotys-Schwartz, D. and Shih, C., "Global Confidence: Student Outcomes from an International Capstone Design Experiences" *Proceedings, American Society for Engineering Education 2013 Annual Conference & Exposition, Atlanta, GA.*
32. Kotys-Schwartz, D. and Shih, C., "Global Confidence: Student Outcomes from an International Capstone Design Experiences" *Proceedings, American Society for Engineering Education 2013 Annual Conference & Exposition, Atlanta, GA.*
  33. Knight, D., Sullivan, J., Kotys-Schwartz, D., Myers, B., Louie, B., "The Impact of Inclusive Excellence Programs on First Year Engineering Identity Development in Underrepresented Populations" *Proceedings, American Society for Engineering Education 2013 Annual Conference & Exposition, Atlanta, GA.*
  34. Cooper, L. §, Kotys-Schwartz, D., "Designing the Design Experience: Identifying Factors of Student Motivation in Project-Based Learning and Project-Based Service-Learning" *Proceedings, American Society for Engineering Education 2013 Annual Conference & Exposition, Atlanta, GA. \*Best of Design in Engineering Education Division\**
  35. Tsai, J§., Kotys-Schwartz, D., Louie, B., Ferguson, G., Berg, A., "Am I a Boss or a Coach? Graduate Students Mentoring Undergraduates in Research" *Proceedings, American Society for Engineering Education 2013 Annual Conference & Exposition, Atlanta, GA. \*Best Student Paper – Graduate Studies Division\**
  36. Tsai, J§., Kotys-Schwartz, D., Hannigan, M., "Learning Statics by Feeling: Effects of Everyday Examples on Confidence and Identity Development" *Proceedings, American Society for Engineering Education 2013 Annual Conference & Exposition, Atlanta, GA. \*Best Paper – Mechanics Division\**
  37. Cooper, L.§, Kotys-Schwartz, D., "Using Random Forests to Identify Factors of Student Motivation in a Project-Based Learning Course" *Proceedings, ASME 2012 International Mechanical Engineering Congress & Expo (IMECE), Houston, TX.*
  38. Tsai, J§., Kotys-Schwartz, D., Ferguson, G., Louie, B. "Comparing Mentor and Mentee Perspectives in a Research-Based Undergraduate Mentoring Program" *Proceedings, ASME 2012 International Mechanical Engineering Congress & Expo (IMECE), Houston, TX.*
  39. Tsai, J§., Kotys-Schwartz, D., Ferguson, G., Louie, B. "Graduate Students Mentoring Undergraduates in Research: Attitudes and Reflections about These Experiences" *Proceedings, American Society for Engineering Education 2012 Annual Conference & Exposition, San Antonio, TX.*
  40. Tsai, J. §, Kotys-Schwartz, D., Ferguson, G., Louie, B. "Assessing Efficacy of a New Research-Oriented Peer Mentoring Program: YOUR@CU" *Proceedings, ASME 2011 International Mechanical Engineering Congress & Expo (IMECE), Denver, CO.*
  41. Rockenbaugh, L.§, Kotys-Schwartz, D., Reamon, D. "Project-Based Service-Learning and Student Motivation" *Proceedings, ASME 2011 International Mechanical Engineering Congress & Expo (IMECE), Denver, CO.*

42. Kotys-Schwartz, D., Besterfield-Sacre, M., Shuman, L. "Informal Learning in Engineering Education: Where we are and Where we need to go" *Proceedings, 2011 Frontiers in Education Conference*, Rapid City, SD.
43. Rockenbaugh, L.<sup>§</sup> and Kotys-Schwartz, D. "Project-Based Service Learning and Student Motivation" *Proceedings, American Society for Engineering Education 2011 Annual Conference & Exposition*, Vancouver, BC, Canada.
44. Trivett, A., Kotys-Schwartz, D., Cyrus, P., "Comparison of Engineering Student Self-confidence in Their Abilities at Two Universities" *Proceedings, American Society for Engineering Education 2011 Annual Conference & Exposition*, Vancouver, BC, Canada.
45. Zarske, M., Rockenbaugh, L. <sup>§</sup>, Kotys-Schwartz, D., Reamon, D., "Engineering for American Communities: Engaging engineering students in multidisciplinary altruistic engineering design project" *Proceedings, American Society for Engineering Education 2011 Annual Conference & Exposition*, Vancouver, BC, Canada.
46. Knight, D., Kotys-Schwartz, D., and Pawlas, G. "Triangulation: An Effective Assessment Tool for Capstone Design Program Evaluation?" *Proceedings, 2010 Capstone Design Conference*, Boulder, CO. June 2010.
47. Kotys-Schwartz, D., Knight, D. and Pawlas, G. "First-Year and Capstone Design Projects: Is the Bookend Curriculum Approach Effective for Skill Gain?" *Proceedings, 2010 American Society for Engineering Education Annual Conference & Exposition*, Louisville, KY. June 2010.
48. Eisenhart, M. and Kotys-Schwartz, D. "The Meaning of Interest in Engineering" *Proceedings, 2010 American Educational Research Association*, Denver, CO. April 2010.
49. Margolis, J.<sup>§</sup>, Kotys-Schwartz, D., Knight, D. "The Post-Graduation Attrition of Engineering Students: An Exploratory Study on Influential Career Choice Factors" *Proceedings, ASME 2009 International Mechanical Engineering Congress & Expo (IMCE)*, Lake Buena Vista, Florida. November 2009.
50. Kotys-Schwartz, D., Knight, D. and Pawlas, G. "From First Year Engineering Projects to Senior Capstone Design: What Skills Are Our Students Gaining?" *Proceedings, ASME 2009 International Mechanical Engineering Congress & Expo (IMCE)*, Lake Buena Vista, Florida. November 2009.
51. Eisenhart, M., Morris, T., Kotys-Schwartz, D. "Empty Choice: Can Girls Want Engineering If They Don't Know What It Is?" *Proceedings, 2009 American Educational Research Association*, San Diego, CA. April 2009.
52. Kotys-Schwartz, D., Knight, D. "From First Year Projects to Senior Capstone Design. What Skills are Really Gained?" *Proceedings, 2008 Frontiers in Education Annual Conference*, Saratoga Springs, NY. October 2008.
53. Kotys-Schwartz, D.A. and Carlson, L.E. "Evaluation of the Impact of Interactivity on Student Performance and Attitudes in Engineering." *Proceedings, First International Conference on Research in Engineering Education*, Honolulu, HI. June 2007.

54. Kotys-Schwartz, D.A., Carlson, L.E. and Reamon, D. "Systematic Integration of Concept Inventories in Mechanical Engineering." *Proceedings, 2006 American Society for Engineering Education Annual Conference & Exposition*, Chicago, IL. Session 3430.
55. Kotys-Schwartz, D.A. and Carlson, L.E. "Manufacturing Processes and Systems: Quantitative Evaluation of the Impact of Interactivity on Student Performance." *Proceedings, 2006 American Society for Engineering Education Annual Conference & Exposition*, Chicago, IL. Session 3166.
56. Zarske, M.S., Kotys-Schwartz, D.A., Sullivan, J.F. and Yowell, J.L. "Creative Engineering: Helping Ninth-Grade Students Discover Engineering." *Proceedings, 2005 American Society for Engineering Education Annual Conference & Exposition*, Portland, OR. Session 2610.
57. Kotys-Schwartz, D.A. and Zarske, M.S. "Graduate Student Personal Experiences: Improving Collegiate Teaching through K-12 Outreach." *Proceedings, 2005 American Society for Engineering Education Annual Conference & Exposition*, Portland, OR. Session 3455.

## **PUBLISHED CURRICULUM**

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1. Kotys-Schwarz, D., "Stress Strain Diagrams." [LearnChemE \(Engineering Screencasts\)](#). 2012. YouTube and iTunes U. <[www.youtube.com/user/LearnChemE](http://www.youtube.com/user/LearnChemE)> , <[www.itunes.apple.com/us/institution/university-of-colorado-boulder](http://www.itunes.apple.com/us/institution/university-of-colorado-boulder)>
2. Kotys-Schwarz, D., "Elastic Properties of Metals." [LearnChemE \(Engineering Screencasts\)](#). 2012. YouTube and iTunes U. <[www.youtube.com/user/LearnChemE](http://www.youtube.com/user/LearnChemE)> , <[www.itunes.apple.com/us/institution/university-of-colorado-boulder](http://www.itunes.apple.com/us/institution/university-of-colorado-boulder)>.
3. Kotys-Schwarz, D., "Engineering Stress Strain." [LearnChemE \(Engineering Screencasts\)](#). 2012. YouTube and iTunes U. <[www.youtube.com/user/LearnChemE](http://www.youtube.com/user/LearnChemE)> , <[www.itunes.apple.com/us/institution/university-of-colorado-boulder](http://www.itunes.apple.com/us/institution/university-of-colorado-boulder)>.
4. Kotys-Schwarz, D., "Dislocation and Plastic Deformation." [LearnChemE \(Engineering Screencasts\)](#). 2012. YouTube and iTunes U. <[www.youtube.com/user/LearnChemE](http://www.youtube.com/user/LearnChemE)> , <[www.itunes.apple.com/us/institution/university-of-colorado-boulder](http://www.itunes.apple.com/us/institution/university-of-colorado-boulder)>.
5. Kotys-Schwarz, D., "Recrystallization." [LearnChemE \(Engineering Screencasts\)](#). 2012. YouTube and iTunes U. <[www.youtube.com/user/LearnChemE](http://www.youtube.com/user/LearnChemE)> , <[www.itunes.apple.com/us/institution/university-of-colorado-boulder](http://www.itunes.apple.com/us/institution/university-of-colorado-boulder)>.
6. Kay, B., Kotys-Schwartz, D.A., Yowell, J.L., Zarske M.S. "Curricular Unit: Mixtures and Solutions." [TeachEngineering](#). 2006. NSF - NSDL. 1 Mar. 2006 <[www.teachengineering.com](http://www.teachengineering.com)>.
7. Kolenbrander, A., Kotys-Schwartz, D.A., Yowell, J.L., Mach, N., Zarske M.S., Carlson, D.W. "Curricular Unit: Air Pollution Activities." [TeachEngineering](#). 2004. NSF - NSDL. 23 Mar. 2005 <[www.teachengineering.com](http://www.teachengineering.com)>.
8. Kotys-Schwartz, D.A., Hill, J., Yakacki, C., Zarske M.S., Yowell, J.L. "Curricular Unit: Mission to Mars." [TeachEngineering](#). 2004. NSF - NSDL. 23 Mar. 2005 <[www.teachengineering.com](http://www.teachengineering.com)>.
9. Kotys-Schwartz, D.A., Zamora Thompson, X., Friedrichsen, J., Zarske M.S., Carlson, D.W. "Curricular Unit: Put a Spark in It! - Electricity." [TeachEngineering](#). 2004. NSF - NSDL. 23 Mar. 2005 <[www.teachengineering.com](http://www.teachengineering.com)>.

## LECTURES AND PRESENTATIONS

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### Invited Presentations

1. Invited panelist - ASME Panel Discussion on Engineering Education. Event: ASME Engineering Education: The Future is Now 3/22 - 3/25, 2021. This webinar from the American Society of Mechanical Engineers (ASME) focused on the shift to online education at universities, the digital engineering skills students will need to learn, and how academia and industry can work together to prepare the young engineers entering the workforce. Discussion included: discuss: Adoption and challenges of online distance education; What new skills will be taught to engineers going forward; How the future engineering education model will change.
2. Peer Reviewed Workshop: M. C. Paretti, D. Kotys-Schwartz, J. Ford, S. Howe, and R. Ott., "Putting Students to Work: Using Findings from a Multi-University Study of Engineers' First Year of Work to Enhance Design Education." Proceedings, American Society for Engineering Education 2021 Annual Conference & Exposition, virtual conference, July 26-29, 2021.
3. NSF Grantees' Poster Session at the Proceedings, American Society for Engineering Education 2021 Annual Conference & Exposition, virtual conference. July 26-29, 2021.
4. 36ers Lunch Club Invited Presentation, CSU-Pueblo, CO, 2019. Lessons Learned From a Reluctant Leader. Overview: "36ers Club" – a group of women who are dedicated to lifting up and supporting each other individually and across the Pueblo campus. Invited by the Dean of the Division of Extended Studies.
5. Invited Panelist: 2018 Capstone Design Conference. "Grading or Evaluating Progress in Capstone." 06/05/18. Rochester, NY.
6. Invited Panelist: 2018 Capstone Design Conference. "Roles and Responsibilities on Capstone Teams." Wednesday, 06/06/18. Rochester, NY.
7. "Designing the Engineer: Curriculum and Infrastructure to Create Professionally Prepared Engineers" University of Florida Benton Lecturer. *2016 Summit of the Institute for Excellence in Engineering Education*. Gainesville, Florida. November 1, 2016.
8. "Idea Forge" *Colorado School of Mines Trefny Center*. Golden, Colorado. January 28, 2016.
9. "Effective Strategies and Programs for Increasing Women's Representation in the College of Engineering" Women in Physics Meeting. *University of Colorado, Women in Physics*. Boulder, CO. November 21, 2014.
10. "Unpacking the Engineering Practices", *Colorado Science Education Network*. West Minster, Colorado. October 22, 2012.
11. "You Can Do Research on That?" TIGER Workshop. *University of Colorado, TIGER Seminar Series*. Boulder, CO. September 27, 2012.

12. "Maintaining Individuality: Preserving Your 'Youness' in Engineering Industry" Andrews Hall Industry Night Keynote. *University of Colorado, Andrews Hall Industry Night Seminar Series*. Boulder, CO. April 5, 2012.
13. "First-Year and Capstone Design Projects: Is the Bookend Curriculum Approach Effective for Skill Gain?" *2010 ASEE Engineering Design Graphics Division Midyear Conference*. Houghton, MI. October 4, 2010.
14. "First Year Engineering Projects - My Favorite Class", *Purdue University - School of Engineering Education Seminar Series*. West Lafayette, Indiana. September 25, 2008.
15. "Because Dreams Need Doing" MESA Mark Keynote. *Colorado Math Engineering Science Achievement (MESA) Mark State Conference*. Boulder, CO. September 8, 2007.
16. "A University Perspective: Future Needs in Mechanical Engineering", *Forum - Energy Issues and Technology Developments for ASME Nuclear Codes and Standards*, Boulder, CO. September 18, 2007.
17. Kotys-Schwartz, D., "Improving Plastic Gear Accuracy Through Gas-Assisted Injection Molding", *Gear Dynamics and Gear Noise Research Laboratory Sponsors Meeting*. Columbus, Ohio. 2000.
18. Kotys-Schwartz, D., "Improving Plastic Gear Accuracy Through Gas-Assisted Injection Molding", *Gear Dynamics and Gear Noise Research Laboratory Sponsors Meeting*. Columbus, Ohio. 2001.

### **Refereed Conference Presentations**

1. Steinbrenner, J., Kotys-Schwartz, D., Knight, D., "Teams, Tantrums, and Tears: Conflict Resolution in 2020", 2020 Capstone Design Conference, submitted, not presented due to COVID.
2. Lutz, B., Kotys-Schwartz, D., Howe, S., Paretto, M., "Into the Workplace: Innovative Approaches to Exploring Newcomer Learning and Transfer" *Proceedings, Clive L. Dym Mudd Design Workshop X: "Design and the Future of the Engineer of 2020."* Claremont, CA.
3. Kotys-Schwartz, D., Lauff, C., and Menold, J., "Teaching Prototyping: Translating Best Practices from Industry to Design Courses," American Society for Engineering Education 2018 Annual Conference & Exposition, Salt Lake City, UT. June 24, 2018.
4. Kotys-Schwartz, D., Zappe, S., Froyd, J. and Yoder, B., "Build to Last: Strategies for Sustaining Innovative Educational Initiatives," American Society for Engineering Education 2018 Annual Conference & Exposition, Salt Lake City, UT. June 24, 2018.
5. Tsai, J§., Kotys-Schwartz, D., "The Power of Networks as an Engineering Sophomore" *Proceedings, 2014 International Conference of the Learning Sciences*, Boulder, CO.

6. Lauff, C., Weidler-Lewis, J., O'Connor, K., Kotys-Schwartz, D., Rentschler, M., "Cognitive Ethnographies of Heterogeneous Engineering Design?" *Proceedings, International Conference of the Learning Sciences*, Boulder, CO.
7. Kotys-Schwartz, D., Knight, D. and Rentschler, M., "Design Center Colorado: Fostering Meaningful Partnerships Between Students Industry and Government Agencies" *Proceedings, American Society of Engineering Education Rocky Mountain Section Conference*. Pueblo, CO. March 2013.
8. Kotys-Schwartz, D., Zarske, M., Sullivan, J., Louie, B., Luftig, J., O'Connor, K., "Inclusive Excellence to Bolster Diversity: A System of Pathways To and Through Engineering Capacity-Building" *Proceedings, American Society of Engineering Education Rocky Mountain Section Conference*. Pueblo, CO. March 2013.
9. Tsai, J., Kotys-Schwartz, D., "Status and Roles of Students in Engineering: A Justification for Studying the Creation of Status Assignments in Freshman and Sophomore Year" *Proceedings, American Society of Engineering Education Rocky Mountain Section Conference*. Pueblo, CO. March 2013.
10. Kotys-Schwartz, D., Knight, D. and Pawlas, G., "The Utility of the Double Triangle as an Assessment Tool for Investigating Skill Development in Capstone Design Courses" *Proceedings, American Society International Mechanical Engineering Congress and Exposition (ASME IMECE)*. Houston, TX. November 2012.
11. Kotys-Schwartz, D., Nicodemus, G. and Falconer, J., "Incorporating Screencasts Into Mechanical Engineering" *Proceedings, American Society International Mechanical Engineering Congress and Exposition (ASME IMECE)*. Houston, TX. November 2012.
12. Kotys-Schwartz, D., Besterfield-Sacre, M., Shuman, L., "Informal Learning in Engineering Education: Opportunities and Potential Outcomes for Mechanical Engineering Students" *Proceedings, American Society International Mechanical Engineering Congress and Exposition (ASME IMECE)*. Houston, TX. November 2012.
13. Tsai, J.S., Kotys-Schwartz, D., Hannigan, M., "A Body-Based Approach to Teaching and Learning Engineering Statics" *Proceedings, American Society International Mechanical Engineering Congress and Exposition (ASME IMECE)*. Houston, TX. November 2012.
14. Kotys-Schwartz, D., "Oral Discourse Focused on Conceptual Development: An Exploration into Implementation in Mechanical Engineering." *Proceedings, American Society International Mechanical Engineering Congress and Exposition (ASME IMECE)*. Lake Buena Vista, Fl. November 2009.

### **Refereed Conference and Symposium Posters**

1. Knight, D., Polmear, M., and Kotys-Schwartz, D. "Skills Building in Design Spaces at the Design Center Colorado" *University of Colorado Center for STEM Learning Symposium*. Boulder, CO. November 2013.

2. J., Gordon, Canney, N., and Kotys-Schwartz, D., Hannigan, M., Mickelson, A., Gateau, Y., "Hands-On Learning in a Haitian Sustainable Energy Course: Improving Attitudes" *University of Colorado Center for STEM Learning Symposium*. Boulder, CO. November 2013.

## TEACHING

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### Courses

#### **Digital Fabrication COEN special topics 4830/ARTS 4017/5017**

- This class is an introduction to digital modeling and fabrication. Students will learn 3D CAD modeling software Rhino to design many types of projects. In conjunction with the modeling software, students will learn how to fabricate their projects using the laser cutter, 3D printer, 3D scanner, vinyl cutter, and CNC router.

#### **Advanced Product Design: MCEN 5228**

- Developed material to teach team dynamics, ergonomics, aesthetics, and design for manufacturing in product design. Course size: 20 to 40 students.
- Assisting in course with Dr. Greg Reiker, Dr. Mark Rentschler, and Marcelo Berquist

#### **Component Design: MCEN 3025**

- Developed materials to teach fundamental machine design concepts to junior level mechanical engineers. Utilizing in class workshops, in class activities, example parts and short videos to illustrate technical concepts. Created semester-long project and professional training sessions to prepare students for project-based learning. Course size: 110 to 160 students.

#### **Freshman Design Projects: GEEN 1400**

- Developed material to teach semester hands-on, team-based interdisciplinary design course for entry-level engineering students. Created two design projects for teams to practice professional and technical skill objectives. Professional skills objectives include knowledge of engineering as a career, communication skills and teamwork skills. The technical skill learning objectives emphasize fundamental engineering methodologies and design process skills. Course format includes lecture and studio time. Course size: 35 students.

#### **Graduate Design Projects: MCEN 5228**

- Two semester (Fall and Spring) course series where the faculty advisor monitors progress, and mentors teams on technical and professional skills for industry sponsored design projects. Course size: one student team per an advisor, 5 students per a team.

#### **Introduction to Mechanical Engineering: MCEN 1000**

- Developed material to teach mechanical engineering as a career, professional and ethical expectations for engineers, and contemporary issues in mechanical engineering. Created two-week hands-on machining lab. Course size: 100 to 130 students.

### **Manufacturing Processes and Systems: MCEN 4026**

- Developed hands-on course material to teach the material processing, quality control and world class manufacturing to senior level mechanical engineers. Created in class activities, three case studies and a final project to culminate course. Course size: 110 to 160 students.

### **Material Science: MCEN 2024**

- Developed summer offering of course with 5 hours of lecture time per a week. Course was transformed from a purely lecture based format, to a highly interactive pedagogical framework. Course size: 30 students.

### **Senior Projects: MCEN 4045 (Fall) and 4085 (Spring)**

- Coordinating 31 industry/organization/government-sponsored design projects, 24 Faculty Advisors and 28 Industry Mentors. Developed curriculum to teach professional skills (i.e., project management, communication, conflict resolution, etc.) to senior level mechanical engineering students. Co-developed workshop model teaching to replace traditional lecture mode. Two semester (Fall and Spring) course series where the Faculty Advisors monitor progress, and mentors teams on technical and professional skills. Course size: 180-200 students.

## **Advising (since June 2007)**

### **Ph.D. Students - Completed**

Carlye Lauff, Ph.D. Candidate in Mechanical Engineering  
(Fall 2014 – Spring 2018)  
“Prototyping in the Wild.”

Janet Tsai, Ph.D. Candidate in Mechanical Engineering  
(Fall 2010 – Present)  
“Actor-Networks of Sophomore Engineering: Durability and Change in Required Mathematics Courses.”

Lauren Cooper, Ph.D. in Mechanical Engineering,  
(May 2014)  
“Designing the Design Experience: Identifying Factors of Student Motivation in a Project-Based Learning and Project-Based Service Learning.”

### **M.S. Thesis Students - Completed**

James Margolis, M.S. in Mechanical Engineering, May, 2008  
“The attrition of Engineering Graduates: An Exploratory Study on Influential Career Choice Factors.”

### **B.S. Independent Study Students**

- Henry Osman: “CNC Router Table,” Spring 2018.
- Nicholas Muth: “CNC Controls Project,” Spring 2018.

- Bryan Hernandez: "Advanced CAD," Spring 2014.
- Austin Schipper: "Design and Development of the EcoMarathon Dynamometer," Spring 2013.
- Benjamin Fuoss: "Feasibility Study for Welding College of Engineering Facility and Student Workshop," Spring 2013.
- Kelsey Spurr: "Development of Senior Design Composites Workshop," Spring 2013.
- Kyle Jacques: "GY6 Combustion Chamber," Fall 2012 and Spring 2013.
- Bryron Rudisill: "Design and Development of the EcoMarathon Dynamometer," Fall 2012 and Spring 2013.
- Andrew Bornstein: "Single Cylinder Engine Modification with Conjugate Cam," Spring 2011 and Fall 2011.
- Brian Rafferty: "Single Cylinder Engine Modification with Conjugate Cam," Spring 2011 and Fall 2011.
- Austin Schipper: "The Shell Eco-Marathon Car at the University of Colorado," Spring 2011.
- Andrew Wertz: "Creating ORALS for Engineering Statics," Fall 2010.
- Matthew Cavalier: "Independent Spring, Mass and Damper System Study," Fall 2010.
- Josh Rust: "Development of Electrocardiogram Module: An Introduction to Engineering and its Role in Diagnostic Medicine," Summer 2010.
- Tristina DeWitt: "Oral Discourse Focused on Conceptual Development – Mechanical Engineering Statics Pilot," Fall 2009.
- Zachary Gremillion: "Design and Optimization of Vacuum Chamber Tooling," Fall 2009.
- Erin Booth: "Oral Discourse Focused on Conceptual Development – Mechanical Engineering Statics Pilot," Spring 2009.
- Eric Kelso: "Oral Discourse Focused on Conceptual Development – Mechanical Engineering Component Design Pilot," Spring 2009.
- Duncan Kochhar-Lindgren: "Engine Simulation with Ricardo WAVE," Spring 2009.
- Erik Larson: "Design of a CNC Gantry Router," Spring 2009.
- Scott McMahan: "Design and Fabrication of Ultra Low Cost Electro Polishing Unit," Spring 2009.
- James Neeley: "Design and Fabrication of Bluetooth Game Controller," Spring 2009.
- Grant Boney: "Vehicle Dynamics for FSAE Applications," Fall 2008.
- Nicholas Gilman: "Advanced Machining – CAD/CAM Theory and Application," Fall 2008.
- Bridget Lipman: "Advanced Machining – CAD/CAM Theory and Application," Fall 2008.
- Brady Reece: "Engineering Education – Learning Theory and Hands-on Curriculum Development," Fall 2008.
- Mark Shamburg-Donohue: "Design and Manufacturing of Disc Drag Approach to Classic Fly Fishing Reel," Fall 2008.
- Katherine Gustafson: "Life Cycle Analysis of Plastic Grocery Sack," Spring 2008.

- Christopher Jaeger: "Data Acquisition for FSAE: A Practical Approach to the MoTeC ADL2," Spring 2008.
- Alan Kempner: "Design and Fabrication of Rising Rate Linkage on a Full Suspension Mountain Bike," Spring 2008.
- Bradley Krough: "The Future Impact of Hydrogen Engines on the Auto Market," Spring 2008.
- Bradford Peagler: "Engineering Education – Learning Theory and Hands-on Curriculum Development," Spring 2008.
- Vincent Powell: "Advanced Machining Practices: Design and Development of a Downhill Mountain Bike Frame," Spring 2008.
- Douglas Schafer: "Advanced Machining Practices: Design and Development of a Downhill Mountain Bike Frame," Spring 2008.
- Molly Selting: "Material Selection Theory and Mechanical Engineering," Fall 2007.
- Melissa Rougeaux: Engineering Education. Fall 2007.
- Danny Robertson: "Advanced Machining- CAD/CAM Theory and Application Through MasterCAM Applications," Fall 2007.
- Colin Schipper: "Advanced Welding – Best Practices and Strength Analysis of Feed Rate and Bevel Factors," Fall 2007.
- Isabela Alai Saez De Ibarra: "Advanced Machining – Fly Fish Reel CNC Project," Fall 2007.
- Peter Zawistowski: "Design and Manufacture of Yeti Bicycles Deflection Test Fixture," Fall 2007.

### **B.S. Research Students**

- Lecia Finney (MCEN)  
- Undergraduate Research Opportunities Program (UROP), Spring 2008.
- Jared Leidich (MCEN)  
- Undergraduate Research Opportunities Program (UROP), Spring 2008.
- Maxwell Peevey (MCEN)  
- Undergraduate Research Opportunities Program (UROP), Spring 2007.
- Bryce Bingham (MCEN)  
- Undergraduate Research Opportunities Program (UROP), Spring 2007.

### **Other Research Students**

- Patricia Chavez, Denver School of Science and Technology, Senior Project Advisor: Solar Powered Belt Buckle (Fall 2008 – Spring 2009).
- Alex Scherbl, Chris Torres, Jay Wellman, Denver School of Science and Technology, Senior Project Advisor: Solar Powered Vehicle (Fall 2007 – Spring 2008).
- University of Colorado User Interface Design Project Sponsor, Project: I/UCPC Integrated Evaluation project (Fall 2007).

## Advising Committees (since June 2007)

### Ph.D. Committees

- Lisa Schibelius, 2023, Ph.D. Candidate in Virginia Polytechnic Institute and State University Department of Engineering Education. (2022-2023).
- Madhur Bharath Atreya. Ph.D. Candidate in BEEM Lab, College of Engineering and Applied Science (fall 2020).
- Donna Auguste, Ph.D. Candidate in ATLAS (Fall 2017– present).
- Abigail Watrous, Ph.D. Candidate in Civil Engineering (Fall 2007– Summer 2012).

### M.S. Thesis Committees

- John Kearns, M.S. in Mechanical Engineering, December 2015.
- Morgan Hill, M.S. in Mechanical Engineering, May 2013.
- Audrey Earnshaw, M.S. in Mechanical Engineering, August 2009.
- Joel Bettner, M.S. in Mechanical Engineering, August 2007.

## Outreach Activities

<i>2014</i>	Girl Scout STEM Activities, University of Colorado. Coordinated and conducted tours of the Idea Forge for approximately 35 high school Girl Scouts. Organizing and implementing welding workshops for Girl Scouts.
<i>2010</i>	High School Honors Institute (HSHI) Instructor, University of Colorado. Developed new curriculum based on Design for the Other 90% and instructed hands-on sessions for two days.
<i>2010</i>	Engineering Sampler Presenter, University of Colorado. Developed and presented interactive mechanical engineering information session for 100 visiting students and parents.
<i>2009-2014</i>	Senior Design Project Evaluator. Denver School of Science and Technology.
<i>2008</i>	Centaurus High School Recruitment Day, ME Department Presenter, University of Colorado. Conducted transmission lab for 50 sophomore students.
<i>2007</i>	Discover Engineering Days, ME Department Presenter, University of Colorado.
<i>2007</i>	Guest speaker for Harrison High School MESA Program in Colorado Springs. Developed Introduction to Biomedical Engineering presentation and hands-on heart-valve activity.
<i>2006-2007</i>	Female Recruits Exploring Engineering (FREE) – Denver School of Science and Technology. Conducted engineering workshops once a month.
<i>2006-2007</i>	Female Recruits Exploring Engineering (FREE) – Lincoln High School, Conducted engineering workshops once a month for students.
<i>2006</i>	High School Honors Institute (HSHI) Instructor, University of Colorado. Coordinated two-day event for ME Department. Developed new curriculum based on flow visualization, robotic design and shape memory polymers.
<i>2006-2007</i>	Colorado MESA Mark, ME Department Presenter, University of Colorado.

2005 and 2007 Explore CU Engineering Day, ME Department Panel Representative, University of Colorado.

2004 Expanding Your Horizons, ME Department Presenter, University of Colorado.

### **Faculty Development**

2017 Hacking for Defense Educators & Sponsors Course (2 day workshop)

2010 NSF Exploring How People Learn Workshop (3 day workshop)

2008 NSF Cyberinfrastructure in Engineering Education Workshop (3 day workshop)

2006 FTEP Summer Classroom Learning Assessment Institute (4 day workshop)

2006 Faculty Teaching Excellence Program (FTEP) Teaching in a Nutshell: Strategies to Enhance Student Learning (2 day workshop)

### **SERVICE**

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#### **Department of Mechanical Engineering**

2016 – Present Executive Committee, University of Colorado Department of Mechanical Engineering.

- Yearly responsibilities include representing Design Center (DC) Colorado at weekly meetings in matters relevant to the individuals and spaces overseen by the center. Advised the ME Department Chair on policy, planning, budget, space and other issues as needed.

2012 – Present Design Center (DC) Colorado Director of Undergraduate Programs, University of Colorado Department of Mechanical Engineering.

- Responsibilities include recruiting and soliciting projects for the Senior Projects course, communicating and interacting with industrial sponsors to ensure their retention, writing proposals to leverage the DC Colorado funds to provide improvements to the Department of Mechanical Engineering. Oversight of \$500,000+ annual operating budget, supervising the Design Center Colorado Project and Financial Coordinator, Design Center Colorado Program Coordinator, ME Lab Engineer, and ME Machine Shop Manager. Overseeing Idea Forge Machine Shop, Chevron Senior Design Studio, and ME Undergraduate Studio.

2014 – 2017 NCWIT Extension Services for Undergraduate Programs (ES-UP) Representative, University of Colorado Department of Mechanical Engineering.

- Responsibilities include serving as the CU Department of Mechanical Engineering change agent. Work with NCWIT Extension Services Consultant (ESC) and cross-department team in the College of Engineering and Applied Science to collaboratively plan and implement

systemic initiatives for increasing women's representation in computing and engineering.

*2012 – Present* Design Center (DC) Colorado Director of Undergraduate Programs, University of Colorado Department of Mechanical Engineering.

- Responsibilities include recruiting and soliciting projects for the Senior Projects course, communicating, and interacting with industrial sponsors to ensure their retention, writing proposals to leverage the DC Colorado funds to provide improvements to the Department of Mechanical Engineering. Supervising the Design Center Colorado Project and Financial Coordinator, Design Center Colorado Program Coordinator, ME Lab Engineer, and ME Machine Shop Manager. Overseeing Idea Forge Machine Shop, Chevron Senior Design Studio, and ME Undergraduate Studio.

*2012 – 2014* Industrial Relations Committee, University of Colorado Department of Mechanical Engineering.

- Yearly responsibilities include: Review ME Industrial Advisory Council membership and alter as needed, guide and review bi-annual IAC meeting agenda, support ME Senior Design and Graduate Design project solicitations, coordinate short courses offered by the ME Department for Industry, promote industry-sponsored research, coordinate ME Department advisory groups (STEP and IAC).

*2012 – 2013* ME Undergraduate Advisor Search Committee Chair, University of Colorado Department of Mechanical Engineering.

- Initiated request to proceed with hiring, development of ME Undergraduate Advisor job description and postings.
- Served as primary point of contact for CU Human Resources and 124 applicants. Established protocol for reviewing faculty candidate applications, coordinated phone interview and in-person interview questions. Organized phone interviews and on-site interviews. Conducted references checks and provided final recommendation for hire to ME Department Chair.

*2012* ME Project and Financial Coordinator Search Committee Chair, University of Colorado Department of Mechanical Engineering.

- Initiated request to proceed with hiring, development of ME Project and Financial Coordinator job description and postings.
- Served as primary point of contact for CU Human Resources and applicants. Established protocol for reviewing faculty candidate applications, coordinated phone interview and in-person interview questions. Organized phone interviews and on-site interviews. Conducted references checks and provided final recommendation for hire to ME Department Chair.

*2010 – 2012* CMU-CU Partnership Program Faculty Search Committee Chair, University of Colorado Department of Mechanical Engineering.

- Initiated request to proceed with hiring, development of Instructor job description and postings.
  - Establish protocol for reviewing faculty candidate applications for MSC-CU Partnership Program Instructor position. Organize letter of reference requests, and phone interviews. Host Instructor candidates, conduct on-site interviews and provide final recommendation for hire.
- 2008 – 2013* Colorado Mesa College – University of Colorado Mechanical Engineering Partnership Program Faculty Director.
- Responsibilities include: curriculum transfer, detailing admission guidelines, ABET alignment, facility and equipment oversight, serving on faculty search committees, student orientation, assisting with fundraising activities and student recruiting.
- 2008 – 2012* Undergraduate Committee, University of Colorado Department of Mechanical Engineering.  
*2014 – 2016*
- Yearly responsibilities include: conducting focus groups, conducting task forces, writing task force reports and determining ABET Outcomes tables.
  - Preparing for the ABET 2011 visit responsibilities include: participation in ABET Outcomes retreat, participation in ABET Objective and achievement retreat, and writing four program outcomes sections for self study report.
- 2008 – 2009* CMU-CU Partnership Program Faculty Search Committee, University of Colorado Department of Mechanical Engineering.
- Reviewed faculty candidate applications for MSC-CU Partnership Program Director, hosted several Director candidates, conducted interviews, and contributed to departmental discussion on the merits of each candidate.
- 2007 – 2015* Graduate Design Track Committee, University of Colorado Department of Mechanical Engineering.
- Participate in weekly committee meetings to complete the following activities: creation of Design Track strategic plan, revision of Graduate Design Projects course, revision of Advanced Product Design course, implementation of admission requirements for Design Track, fundraising for Design Track resources, project determination and solicitation.
- 2007 – present* Senior Design Assessment Team, University of Colorado Department of Mechanical Engineering.
- Weekly meetings with Design Center Assessment Specialist. The goal of the team is to assess the ability of the Senior Design course to meet course objectives and ME Department Program Objectives.
- 2007 – 2009* Formula Society of Automotive Engineers Co-Advisor, University of Colorado Department of Mechanical Engineering.
- Oversaw all FSAE activities, including vehicle design and analysis, technical presentations, technical reports, and fundraising. Traveled with team to yearly competition in Jackson, Michigan.

- 2007 – 2008 Shell EcoMarathon Vehicle Advisor, University of Colorado Department of Mechanical Engineering.
- Advised EcoMarathon team on all technical and professional activities, including vehicle design and analysis, technical presentations, technical reports, and fundraising.
- 2007 – 2009 Society of Automotive Engineers Student Chapter Advisor, University of Colorado Department of Mechanical Engineering.
- Advised undergraduate students on student chapter activities.
- 2006 – 2008 American Society of Mechanical Engineering Student Chapter Advisor, University of Colorado Department of Mechanical Engineering.
- Advised undergraduate students on student chapter activities. Oversaw chapter funding.
- 2006 – 2013 Co-op Coordinator, University of Colorado Department of Mechanical Engineering.
- Advise undergraduate mechanical engineering students on College of Engineering co-op policies and procedures, perform resume reviews, and job search advice.
  - Serve as point of contact for industry recruiters who would like to start co-op program with CU-Boulder and employ mechanical engineering students.
- 2005 – 2009 Undergraduate Concept Inventory Administration Coordinator, University of Colorado Department of Mechanical Engineering.
- Coordinated pre- and post-Concept Inventory exams in seven mechanical engineering undergraduate courses. Developed testing protocol, conducted exam scanning and analysis.

## **College of Engineering and Applied Sciences Service**

- 2020 - *present* Promotion processes for teaching faculty, Faculty Advancement, College of Engineering and Applied Sciences.
- A college-level committee to coordinate teaching faculty reviews and promotion process within units and at the college level.
- 2014 - *present* Idea Forge Director, College of Engineering and Applied Sciences
- Founding member of the Idea Forge. Facility startup activities included: establishing base funding from the Engineering Excellence Fund, attending all design and construction meetings, eying, hiring of support staff, move into facility, purchase and installations of furnishings, OIT installations, establishing facility policies and procedures, Idea Forge tours, equipment and naming fundraising.
  - Responsibilities: managing the operations, administration and fundraising for Idea Forge. Responsible for directing the vision of the Idea Forge, developing collaborative relationships across campus, and guiding the programming to encourage a creative, interdisciplinary workspace.

Overseeing the Idea Forge Assistant Director, Project Financial Coordinator, Instructor, Makerspace Engineer and Electronics Center Manager.

- 2009 – 2012 Learning Assistant Program, College of Engineering and Applied Science.
- Lead effort with Associated Dean of Education in Engineering, Integrated Teaching and Learning Laboratory Co-Director, and the School of Education to facilitate the adoption of the Learning Assistants program in the College of Engineering.
- 2009 – 2012 Engineers for American Communities (EFAC) Faculty Advisor, College of Engineering and Applied Science.
- Advise a multidisciplinary engineering student organization whose mission is to perform entrepreneurial engineering design work to create affordable living innovations for people in need in local communities.
  - Guide undergraduate and graduate students on design activities, funding, client identification and client relationships.
- 2009 Service Learning Action Committee, College of Engineering and Applied Science.
- Assisted with development of white paper—*Strategic Initiative in Service Learning*. Participated in inter-disciplinary discussions regarding strategic planning for Service Learning within the College of Engineering and Applied Sciences.
- 2009 Professional Learning Action Committee, College of Engineering and Applied Sciences.
- Assisted with development of white paper—*Final Report of the Professional Learning Action Committee*. Participated in inter-disciplinary discussions regarding strategic planning for Professional Learning within the College of Engineering and Applied Sciences.
- 2006 – 2012 Co-op Committee, College of Engineering and Applied Sciences.
- Participated in discussions on co-op policies, student requirements, and student training. Assisted in creation of co-op student handbook, co-op company handbook, participating company assessment, and student participant assessment.

## University of Colorado

- 2017 – Present University of Colorado Boulder, Program Fee Task Force, College of Engineering and Applied Science Representative.
- Responsibilities include monthly meetings to determine the fee allocation base for FY20 forward and how we will manage adjustments in the future.
- 2017 – Present University of Colorado Boulder, Cross Campus Entrepreneur Strategy Team, Idea Forge Representative.
- Responsibilities include monthly meetings of campus innovation and entrepreneurship leaders from multiple colleges, schools and

departments. Goal of the group is to share ideas, collaborate provide feedback and advice on coordination of innovation and entrepreneurship initiatives across campus.

- 2017* University of Colorado Boulder, First Year Interest Group (FIG) Task Force
- Responsibilities include: 1) Evaluate the use of FIGs at peer institutions to gain an understanding of approaches to FIG implementation. 2) Develop an implementation approach for FIGs that would be appropriate for the UC Boulder campus. 3) Write a recommendation to the RAP Review Task Force on how FIGs might be expanded at CU Boulder in Fall 2018 including issues such as FIG size, location, faculty-student ratio, number of classes in a FIG cluster, and how a FIG might differ from an existing RAP experience.
- 2014 – Present* University of Colorado Center for STEM Learning (CSL), Faculty Fellow.
- Responsibilities include attending fellows meetings three times a year. Offer idea, feedback and advice on proposed CSL priorities, direction, programs and activities. Serve as ambassador for STEM education within CU and beyond CU community.
- 2009 – 2014* University of Colorado Center for STEM Learning, Project Management Team.
- One of nine members assisting in the management of Chancellor Philip DiStefano's (PI) NSF I3: Towards an Institute for STEM education.
  - Responsibilities include program assessment, annual symposium planning and implementations, review and selection of Chancellor's Awards for Excellence in STEM Education, writing of NSF annual report, fundraising, policy work, planning for University of Colorado Center for STEM Education.
- 2009 – 2012* University of Colorado Boulder Faculty Assembly (BFA), Instructor Representative.
- Work with other BFA members, departmental faculty, college-level groups and key CU-Boulder administrators on University of Colorado policy recommendations and changes.
- 2009–2012* University of Colorado Boulder Faculty Assembly (BFA), Faculty Affairs Committee
- Address faculty matters, including faculty responsibilities and rights in teaching, research, and service.

## **National**

- 2020 – current* Advisory Board member for Department of Engineering Education, The Ohio State University, Columbus, OH.
- Invitation to join the Advisory Board for the department, in the area of programs in multidisciplinary design and integrated business and engineering.

## PROFESSIONAL SERVICE

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### Conference/Symposium Organizing and Editorial Duties for Proceedings

2018 Capstone Design Conference. The Ohio State University, Columbus, OH. Special Sessions and Social Activities' Chair.

2014 Capstone Design Conference. The Ohio State University, Columbus, OH. Student Engagement Chair.

"4<sup>th</sup> Annual Symposium on STEM Education: Celebrating the Launch of the Center for STEM Learning." University of Colorado Integrating STEM (iSTEM) 2012 Symposium. Co-organizer with N. Finkelstein, K. Kidder, M. V. Otero.

"Integration of Disciplines; 3<sup>rd</sup> Annual Symposium on STEM Education." University of Colorado Integrating STEM (iSTEM) 2011 Symposium. Co-organizer with N. Finkelstein, K. Kidder, M. Klymkowsky, V. Otero, D. Reamon, E. Stade.

"Celebrate Excellence: 2<sup>nd</sup> Annual Symposium on STEM Education." University of Colorado Integrating STEM (iSTEM) 2010 Symposium. Co-organizer with N. Finkelstein, K. Kidder, M. Klymkowsky, V. Otero, D. Reamon, E. Stade.

"Science, Technology, Engineering and Math (STEM) Education Symposium." University of Colorado Integrating STEM (iSTEM) 2009 Symposium. Co-organizer with J. Brown, N. Finkelstein, M. Klymkowsky, V. Otero, D. Reamon, E. Stade.

"Forum – Energy Issues and Technology Developments for ASME Nuclear Codes and Standards," 2007 ASME Board on Nuclear Codes and Standards Annual Meeting. Co-Chair with K. Balkey.

### Session Chair

Session Organizer and Moderator, 2016 and 2016 American Society of Engineering Education Annual Conference & Exposition. Educational Research and Methods Division. Session: Get Involved with ERM! A Welcome Breakfast for New Members.

Workshop Organizer, 2016 American Society of Engineering Education Annual Conference & Exposition American Society of Engineering Education, Education Research Methods Division.

Organizer and Moderator, *2014 Capstone Design Conference*. Sessions: What I Wish I Knew On the Job My First Year; Student Poster Session; Student Perspectives on Multidisciplinary Capstone Teams.

Session Chair, *American Society International Mechanical Engineering Congress and Exposition (ASME IMECE)*. Session: 5-5-6.

Session Moderator, 2012 *American Society of Engineering Education Annual Conference & Exposition*. Session: ERM Session - Research Informing Teaching Practice I.

Session Moderator, *American Society of Engineering Education Annual Conference & Exposition*. June 2010. Session: 2425.

Co-Organizer. *ASME 2009 International Mechanical Engineering Congress & Expo (IMCE)*, Lake Buena Vista, Florida. Session: Engineering Outreach and Retention Issues in Mechanical Engineering Education. November 2009.

#### **Professional Society Committees / Involvement**

- Director, American Society of Engineering Education (ASEE) Educational Research Methods (ERM) Division (2014-2016)
- Co-developed welcome breakfast for new or not-yet-active members of ERM to meet and interact with more experienced division members. Met one of the goals of the new ERM strategic plan.
- Co-developing a workshop to build on prior initiatives regarding rigorous research, such as the Rigorous Research in Engineering Education (RIGEE) Initiative and extend them to new and current Members of the ASEE ERM division.
- Capstone Design Conference Student Engagement Chair (2013-2014)
- Secretary/Treasurer, American Society of Engineering Education (ASEE) Educational Research Methods (ERM) Division (2010-2014)
- Co-Chair, American Society of Engineering Education (ASEE) Educational Research Methods (ERM) Division Nominating Committee (2008)
- Invited Panel Member, ASME Mechanical Engineering Education Conference (2008)
- Reviewer, American Society of Engineering Education (ASEE) Educational Research Methods (ERM) Division Apprentice Faculty Grant, (2007 and 2011)
- Division workshop proposal reviewer for Society of Engineering Education (ASEE) Annual Conference, Education Research Methods Division (ERM). (2012)

#### **Professional Review – Proposals & Site Visit Teams**

- National Science Foundation ERC Site Visit Team (Engineering Education Specialist) in 2012, 2013 and 2014.
- Two National Science Foundation Proposal Review Panels in 2007 and 2009.

#### **Professional Review – Peer-reviewed Publications**

- Advances in Engineering Education

- American Society for Engineering Education – Design in Engineering Education Division Annual Conference, Abstracts and Full Papers
- American Society for Engineering Education – Educational Research Methods Division Annual Conference, Abstracts and Full Papers
- American Society for Engineering Education – Mechanical Engineering Division Annual Conference, Abstracts and Full Papers
- American Society for Mechanical Engineering Conference Annual Conference, Abstracts and Full Papers
- IEEE and American Society for Engineering Education Frontiers in Education Conference Abstracts and Full Papers
- International Conference on Research in Engineering Education, Full Papers
- Journal of Engineering Education

#### **Society Memberships**

- Member, American Society of Engineering Education (ASEE)
- Member, American Society of Mechanical Engineers (ASME)
- Member, Society of Automotive Engineers (SAE)
- Member, Pi Tau Sigma National Mechanical Engineering Honor Society

## **FUNDING**

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### **Pending Proposals**

*Pending* National Science Foundation, NRT: Focusing Waves on Information, Safety, and Health, \$3,000,000, 01/01/15-12/31/16, Todd Murray (PI), S. Becker, D. Kotys-Schwartz, R. Piestun (co-PIs).

### **Funded Gifts Since 2010**

2017 Stolle Machinery – Senior Design Competition Team. University of Colorado at Boulder. “SAE Baja.” \$25,000. Fall 2017, Sara Buhr (CU Development Lead) and D. Kotys-Schwartz (Faculty).

2017 David G & Dorthy S. Messerschmitt – Idea Forge Director’s Discetionary Fund \$10,000. Spring 2017. Stephen Hawthorn (CU Development Lead) and D. Kotys-Schwartz (Faculty).

2014 Stolle Machinery – Senior Design Competition Team. University of Colorado at Boulder. “Vertical Milling Machine and Precision Lathe.” \$25,000.00. Fall 2014, Ashley Ligouri (CU Development Lead) and D. Kotys-Schwartz (Faculty).

- 2014 Chevron – Idea Forge Senior Design Studio Naming. University of Colorado at Boulder. “Vertical Milling Machine and Precision Lathe.” \$400,000.00 Fall 2014, Melinda Seevers (CU Development Lead) and D. Kotys-Schwartz and Jana Milford (Faculty).
- 2013 Bob Wills – ME Senior Design Overrun Fund. \$50,000.00. Fall 2014, Ann Scott (CU Development Lead) and D. Kotys-Schwartz (Faculty).
- 2013 Ball Foundation, “Integrated Sustainability-focused Engineering Design Projects and BOLD Diversity Scholarships,” \$127,000. Proposal Cycle: 2013-2014, Jacquelyn Sullivan (PI), Penny Axelrad, Daria Kotys-Schwartz, Melinda Seevers (co-PI).
- 2010 Halliburton Scholarships: Increasing the Pathway to Mechanical Engineering University of Colorado Mechanical Engineering Partnership, \$20,000. Proposal Cycle: 2010-2011, Lindsey Lebowitz (Development Lead), D. Kotys-Schwartz (Faculty).

### **Funded Grants Since 2006**

- 2019 NSF, Collaborative Research: From School to Work: Understanding the Transition from Capstone Design to Industry, \$91,786 8/1/16-7/31/19, Daria Kotys-Schwartz, (co-PI).
- 2018 University of Colorado, “Senior Design Projects Design Center Colorado,” \$19,171, 8/27/12-5/10/18, Daria Kotys-Schwartz (PI).
- 2018 University of Colorado, “Senior Design Projects Design Center Colorado,” \$129,455, Daria Kotys-Schwartz (PI).
- 2018 University of Colorado, “Mechanical Engineering Senior Design Projects AY2017-18,” \$55,545, Daria Kotys-Schwartz (PI).
- 2017 *College of Engineering and Applied Science Innovative Inclusion Ideas Grant* University of Colorado Boulder. “Pop-Up Art Is Engineering.” \$3000. Fall, 2017, E. Stade (PI) J. Hertzberg, D. Kotys-Schwartz, J. Volckens (co-PIs).
- 2017 *Engineering Excellence Fund Minor.* University of Colorado Boulder. “Improved Custom Framing Capabilities.” \$800. Fall, 2017, D. Kotys-Schwartz (Faculty), C. Logsdon (Staff).
- 2017 *Engineering Excellence Fund Minor.* University of Colorado Boulder. “IdeaForge Makerspace Sewing Resource Expansion.” \$2,753. Fall, 2017, D. Kotys-Schwartz (Faculty), S. Nesmith (Student Staff).
- 2017 *Engineering Excellence Fund Minor.* University of Colorado Boulder. “Laser Cutter Rotary Tool.” \$747. Fall, 2017, D. Kotys-Schwartz (Faculty), P. Maguire (Staff).

- 2017 *CU Boulder Outreach Awards*. University of Colorado Boulder. "Expanding TEAM kits for Children in Hospital Settings." \$24,000. Spring, 2017, D. Knight, (PI), D. Kotys-Schwartz (co-PI).
- 2017 *Engineering Excellence Fund Major*. University of Colorado Boulder. "Idea Forge: Digital Manufacturing Lab Development." \$14,850. Spring, 2017, D. Kotys-Schwartz (Faculty), P. Maguire (Staff).
- 2017 *Engineering Excellence Fund Major*. University of Colorado Boulder. "Mechanical Engineering Lab Equipment Adds and Upgrades." \$11,984. Spring, 2017, D. Kotys-Schwartz (Faculty), Shirley Chessman (Staff).
- 2017 *Engineering Excellence Fund Minor*. University of Colorado Boulder. "SLA Printer Improvement." \$747. Spring, 2017, D. Kotys-Schwartz (Faculty), P. Maguire (Staff).
- 2017 *Engineering Excellence Fund Minor*. University of Colorado Boulder. "Miller Syncrowave 250 DX TIG Welder." \$800. Spring, 2017, D. Kotys-Schwartz (Faculty), C. Logsdon, B. Komarek (Staff).
- 2016 *Engineering Excellence Fund Mini*. University of Colorado Boulder. "Abrasive Blasting Cabinet." \$2,650. Spring 2016, C. Logsdon (Staff), D. Kotys-Schwartz (Faculty), B. Komarek (Staff).
- 2016 *Renovation Grant*, College of Engineering and Applied Sciences. "Idea Forge Makerspace Electrical and Lighting." \$6,227.
- 2016 *Beautification Grant*. College of Engineering and Applied Sciences. "Mechanical Engineering: Drop-In-Design Lab." \$7500.
- 2016 *Beautification Grant*. College of Engineering and Applied Sciences. "Idea Forge: Student Seating Upgrade." \$6500.
- 2016 *Engineering Excellence Fund Major*. University of Colorado Boulder. "Mechanical Engineering Computer Upgrades at the Idea Forge." \$46,250. Spring, 2016. D. Kotys-Schwartz (Faculty), S. Chessman (Staff), M. Rentschler (Faculty).
- 2016 *Engineering Excellence Fund Major*. University of Colorado Boulder. "Addressing Student Requested Technology and Equipment Needs in the Idea Forge." \$45,759. Spring, 2016, Komarek (Staff), D. Kotys-Schwartz (Faculty), P. Maguire (Staff).
- 2016 *Engineering Excellence Fund Mini*. University of Colorado Boulder. "Microprocessor Development Kits." \$2,558. Spring 2016, P. Maguire (Staff), D. Kotys-Schwartz (Faculty), B. Komarek (Staff).
- 2016 *National Science Foundation, Collaborative Research: From School to Work: Understanding the Transition from Capstone Design to Industry*, \$91,786, 8/1/16-7/31/19, Daria Kotys-Schwartz (PI).

- 2015 *Engineering Excellence Fund Minor*. University of Colorado Boulder. "Printed Circuit Boards: Enabling Rapid Prototyping to Play a Role in Electronics." \$2,099. Fall 2015, P. Maguire (Staff), D. Kotys-Schwartz (Faculty), B. Komarek (Staff).
- 2015 *Engineering Excellence Fund Major*. University of Colorado Boulder. "Increasing Student Machining Capacity at the Idea Forge." \$44,265. Spring, 2015. D. Kotys-Schwartz (Faculty), R. Komarek (Staff), Greg Potts (Staff).
- 2015 *Engineering Excellence Fund Major*. University of Colorado Boulder. "Increasing Student Machining Capacity at the Idea Forge." \$50,000. Spring, 2015. M. Berquist (Faculty), D. Kotys-Schwartz (Faculty), M. Rentschler (Faculty).
- 2015 *NSF, Graduate Research Fellowship Program, The Role and Impact of Prototyping in Companies*, \$138,000, 9/01/15-8/31/18, Carlye Lauff (PhD Student) Mark Rentschler, Daria Kotys-Schwartz (Co-Advisors).
- 2015 Renovation Grant, College of Engineering and Applied Sciences. Acoustic Damping of the Idea Forge Active Learning Studio. \$7,500.
- 2014 *Engineering Excellence Fund Major*. University of Colorado at Boulder. "Vertical Milling Machine and Precision Lathe." \$33,612.50 Spring 2014, D. Kotys-Schwartz and M. Rentschler (Faculty).
- 2014 *Engineering Excellence Fund Minor*. University of Colorado at Boulder. "College of Engineering and Applied Science Welding Curriculum." \$2,995. Fall 2014, E. Fauble (Student), D. Kotys-Schwartz (Faculty).
- 2013 National Science Foundation, EAGER: Cognitive Ethnographies of Engineering Design, \$188,726, 09/01/13-8/31/14, Mark Rentschler (PI), Daria Kotys-Schwartz, Kevin O'Connor (co-PIs).
- 2013 National Science Foundation, TUES: Information Literacy Skill Development & Assessment in Engineering, \$200,000, 07/01/13-6/30/15, Senay Purzer (PI), Amy Van Epps, Michael Fosmire (co-PIs), Daria Kotys-Schwartz, (External Evaluator).
- 2013 National Science Foundation, MRI Acquisition: An Integrated Platform for Combined Multi-Scale Mechanical and Chemical Analysis to Inform Functional Materials Design, \$434,112, 09/01/13-8/31/14, Virginia Ferguson (PI), Christopher Bowman, Steven George, Daria Kotys-Schwartz, Richard Noble (co-PIs).
- 2013 National Science Foundation, Learning Ethnographies of New Engineers: A New Approach to Understanding the Transition from School to Work, \$1,499,871, 09/01/13-8/31/16, Reed Stevens (PI), Margaret Eisenhart, Daria Kotys-Schwartz, Kevin O'Connor, William Penuel (co-PIs).
- 2013 *Engineering Excellence Fund Major*. University of Colorado at Boulder. "College of Engineering and Applied Science Welding Curriculum." \$4,110. Spring 2013, B.Fuoss (Student), D. Kotys-Schwartz and M. Rentschler (Faculty).

- 2013 Engineering Excellence Fund Major. University of Colorado at Boulder. "Graduate Design Program MakerBot and Computing." \$6,842. Spring 2013, M. Rentschler and D. Kotys-Schwartz (Faculty).
- 2012 National Science Foundation, "Routes to Sustainability for Natural Gas Development and Water and Air Resources in the Rocky Mountain Region," \$11,999,328, 9/24/12-9/23/17, Joseph Ryan (PI), Patrick Bourgeron, Michael Hannigan, Patricia Limerick, Mark Williams (co-PIs), Daria Kotys-Schwartz (Senior Personnel).
- 2011 National Science Foundation, "Inclusive Excellence to Bolster Diversity: A System of Capacity-Building Pathways To and Through Engineering," \$535,510, 9/01/12-8/31/15, Jacquelyn Sullivan (PI), Daria Kotys-Schwartz, Beverly Louie, Kevin O'Connor, Stephanie Rivale (co-PIs).
- 2011 National Science Foundation Graduate Research Fellowship for Janet Tsai, "Body-Based Approach to Teaching and Learning Statics," \$90,000 (No PI Salary), 06/2011 – 05/2014. Daria Kotys-Schwartz (Principal Advisor).
- 2010 Engineering Excellence Fund Minor, "Materials Modeling Software for the enhancement of our Materials Science Curriculum," \$999. Fall 2010 Conrad Stoldt (PI), Yifu Ding, Virginia Ferguson Alan Greenberg, Daria Kotys-Schwartz (co-PIs).
- 2010 Engineering Excellence Fund Minor, "Engineering for American Communities," \$2000. Spring 2010. Lauren Cooper (PI), Daria Kotys-Schwartz, Derek Reamon, Malinda Zarske (co-PIs).
- 2010 Department of Education FIPSE Program, "Sustainable Energy and Aeronautical Engineering," \$177,341: 8/1/10-7/31/13, Chiang Shih (PI), Jonathan Cloos, Juan Carlos Ordonez, Necesio Gomes Costa, Maristela Gomez da Silva (co-PIs), Kotys-Schwartz (External Evaluator).
- 2009 Engineering Excellence Fund Major. University of Colorado at Boulder. "CNC Router, \$8,000. E. Larson (PI), D. Kotys-Schwartz (Co-PI).
- 2009 National Science Foundation, "Collaborative Research: ciHUB A Virtual Community to Support Research, Development and Dissemination of Concept Inventories," \$754,667, 09/15/09-07/31/11, Teri Reed-Rhoads (PI), P.K. Imbrie, Johannes Strobel (co-PIs), Kotys-Schwartz (Advisor Board Member).
- 2008 National Science Foundation, "CAREER: An Exploration of Faculty Expertise and Student Learning in Capstone Experiences" \$405,215, 9/1/08-12/31/14, Marie Parette (PI), Kotys-Schwartz (Advisory Board Member).
- 2008 National Science Foundation, "CCLI: Phase 2-Colorado-Momentum" \$400,000, 9/1/08-9/1/10, Mary Nelson (PI), James Curry, Anne Dougherty, Harvey Segur (co-PIs), Kotys-Schwartz (Senior Personnel).
- 2008 National Science Foundation, "One Day's Pay - Educating K-16 Engineers to Create Affordable Innovations," \$498,613, 9/1/08-9/1/11, Derek Reamon (PI), Daria Kotys-Schwartz, Brian Argrow, Sullivan (co-PIs).

- 2008      Engineering Excellence Fund Major. University of Colorado at Boulder. "CU Formula SAE Proposal." \$12,244. Spring 2008, M.Burns (Student), D. Kotys-Schwartz and D. Reamon (Advisors).
- 2008      Engineering Excellence Fund Major. University of Colorado at Boulder. "2007-08 Shell Ecomarathon." \$10,000. Spring 2008, J. Connor (Student), D. Kotys-Schwartz (Advisor).
- 2007      Department of Education FIPSE Program, "U.S. – Brazil Partnership in Sustainability and Innovative Design," \$211,459: 10/1/07-10/30/12, Larry Shuman (PI), Kristine Lalley, Leandro Palermo, Daniel Moore, Maristela Gomez da Silva (co-PIs), Kotys-Schwartz (External Evaluator).
- 2007      National Science Foundation, "Collaborative Research: Improving Engineering Students' Learning Strategies Through Models and Modeling," \$728,875: 9/1/07-8/30/11, Larry Shuman (PI), Mary Besterfield-Sacre, Renee Clark (co-PIs), Kotys-Schwartz (External Evaluator).
- 2007      National Science Foundation, "Workshop on Cyberinfrastructure and Engineering Education," \$64,987, 9/1/07-2/28/09, Jeffrey E. Froyd (PI), Daria Kotys-Schwartz, Maura J. Borrego, Tamara J. Moore (co-PIs).
- 2006      National Science Foundation, "Potential Recruits in Engineering: A Longitudinal Study of Diverse Academically-able Young Women's Views of Engineering as a Career," \$235,533, 8/15/06-8/15/09, Margaret Eisenhart (PI), Kotys-Schwartz (Researcher).

## Declined Proposals

University of Colorado Seed Grant, "Lifewide Learning in Becoming and Engineer," \$49,576, 9/01/12-8/31/13, Kevin O'Connor (PI) Daria Kotys-Schwartz (Collaborator).

National Science Foundation, "PRISM - Digital Explorations," \$3,000,000 08/01/10-07/30/15, Jim Curry (PI), Daria Kotys-Schwartz, Mary Kraus, JoAnn Silverstein (co-PIs).

Engineering Excellence Fund Major, "2008-2009 CU Formula SAE Proposal," \$10,000, Spring 2009, J. Ortmann (Student), D. Kotys-Schwartz and D. Reamon (Advisors).

National Science Foundation, "IGERT: Air Quality Science and Decision-Making in the Face of Global Change," Jana Milford (PI), Lisa Dilling, Greg Frost, Shelly Miller, Rainer Volkam (co-PIs); Michael Hannigan, Daven Henze, Jose Jimenez, Daria Kotys-Schwartz, Jill Litt, Jennifer Peel, Roger Pielke (Senior Personnel); pre-proposal declined.

National Science Foundation, "IGERT: Air Quality Science, Engineering, and Decision Making," Jana Milford (PI), Michael Hannigan, Shelly Miller (co-PIs); Daria Kotys-Schwartz, Daven Henze, Jose Jimenez, Jill Litt, Jennifer Peel, Roger Pielke, Rainer Volkame (Senior Personnel); pre-proposal declined.

NSF, Engineering Research Center for Energy Systems with New Architectures and Materials, \$13,157,575, 8/1/ 2008 - 7/31/2013, Rishi Raj (PI), Martin Dunn, Daria Kotys-Schwartz, Diana Lados, Manuel Laguan, Kurt Maute, See Hee Lee, Carl Koval, Ron Loehman, Arup Kanti Maji, Ronggui Yang (co-PIs).

National Science Foundation, "CCLI: Phase 2-Colorado-Momentum" \$4.7M, 7/1/11-6/30/16, Mary Nelson (PI), James Curry, Anne Dougherty, Harvey Segur (co-PIs), Kotys-Schwartz (Senior Personnel).

National Science Foundation, "Contextual Research-Empirical - Learning Ethnographies of New Engineers: A New Approach to Understanding the Transition from School to Work," \$580,156, 07/1/11-06/30/14, Kevin O'Connor (PI), Daria Kotys-Schwartz (co-PI).

National Science Foundation, "Collaborative Research: Assessing the Spectrum of International Undergraduate Engineering Educational Experiences," \$523,012, 07/1/11-06/30/14, Mary Besterfield-Sacre, Cheryl Matherly, Gisele Ragusa (co-PIs), Kotys-Schwartz (External Evaluator).

Colorado Department of Transportation, FY 2014 FTA Section 5304 Project Application, \$40,000, 01/01/13-12/31/15, Daria Kotys-Schwarz (PI), Carl Lawrence (co-PIs).