

# Kevin W. Houser, PhD, PE (NE), FIES, LC, LEED AP

## Professor

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## Editor-in-Chief

LEUKOS

Journal of the Illuminating Engineering Society



## Education

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### The Pennsylvania State University

Doctor of Philosophy (PhD) in Architectural Engineering, 1997

- Major course of study: Illuminating Engineering
- Minor course of study: Statistics

### The Pennsylvania State University

Bachelor of Architectural Engineering (BAE), 1993

### Study Abroad Programs

- The Pennsylvania State University Department of Architecture; Rome, Italy (Summer 1995)
- The University of Leeds; Leeds, England (Fall 1991)

## Employment History

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### Oregon State University; Corvallis, OR

Professor of Civil and Construction Engineering

Aug. 2019 – present

Hired to help develop and grow a new bachelor's degree program and graduate degree emphasis in Architectural Engineering. Scope includes curriculum and course development, conceptualization, development, and maintenance of laboratory facilities for undergraduate teaching and graduate research, and supporting graduate students through an externally funded research program.

### The Pennsylvania State University; University Park, PA

Affiliate Professor of Architectural Engineering

Aug. 2019 – present

Professor of Architectural Engineering

Jul. 2012 – Aug. 2019

Associate Professor of Architectural Engineering

Jan. 2008 – Jul. 2012

Responsibilities emphasize teaching, research, and service in building engineering with a focus on lighting systems and sustainability. Scope includes conceptualization, development, and maintenance of laboratory facilities for undergraduate teaching and graduate research, and creating and managing an externally funded research program.

### Illuminating Engineering Society of North America, New York, NY

Editor-in-Chief, LEUKOS the journal of the Illuminating Engineering Society

Jul. 2011 – present

Associate Editor, LEUKOS the journal of the Illuminating Engineering Society

Jul. 2010 – Jun. 2011

Responsible for the development and advancement of the IES's peer-reviewed journal. Set policies and procedures for research paper submittals, peer-review, and selection of articles for publication. Make recommendations to the IES Board of Directors for the overall vision and strategy for LEUKOS. Take actions to continually raise LEUKOS's visibility and impact. Advance the art and science of illuminating engineering in an

objective and professional manner. Proactively solicit research from a diverse range of lighting researchers to advance IES as an agent for research dissemination. Write quarterly editorials on timely topics.

### **University of Nebraska-Lincoln; Omaha, NE**

Associate Professor of Architectural Engineering  
Assistant Professor of Architectural Engineering

Aug. 2005 – Dec. 2007  
Dec. 1998 – Aug. 2005

Founding faculty member of the Architectural Engineering program at the University of Nebraska-Lincoln. Responsibilities included: assisting with the creation of curriculum for the B.S., M.A.E., M.Eng., M.S. and Ph.D. degrees; developing and teaching undergraduate and graduate courses; establishing laboratory facilities for undergraduate teaching and graduate research; managing a research program; recruiting and advising students; and developing international learning opportunities for engineering students.

### **Philips Lighting Company; Somerset, NJ**

Manager of Lighting Education

Jun. 1997 – Nov. 1998

Responsible for program development and course content for all Lighting Center programs. Principal presenter from a pool of twenty experts. Collaborated with colleague to refine course content, delivery, and communication effectiveness. Designed and implemented facility improvements to enhance the Lighting Center's educational effectiveness.

## **Summary of Research Outputs**

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- 49 peer-reviewed publications in refereed journals
- Journal publications recognized three times by the Illuminating Engineering Society (IES) with the Taylor Technical Award (2005, 2011, 2013), and by the Chartered Institution of Building Services Engineers (CIBSE) with the Leon Gaster Award (2005).
- More than 85 other publications, including papers in conference proceedings, professional society technical documents, editorials, trade magazine articles, and contract reports.
- PI or co-PI on more than 30 funded projects totaling more than \$3.1 million. Sources include private industry, government agencies, professional societies, and internal university competitions.
- More than 75 invited presentations, plenary talks, and keynote addresses.
- Collaborated with university colleagues in Medicine, Health and Human Development, Architecture, Landscape Architecture, Architectural Engineering, and Electrical Engineering.
- Supervised 6 completed PhD degrees and 13 master degrees. Committee member for 9 completed PhD degrees and 4 master degrees.
- Societal impacts of university research include influence on the design of commercial lighting products, and influence on the design community through professional society and U.S. Government standards documents.

## **Summary of Teaching and Instructional Initiatives**

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- Recipient of 5 teaching awards (see Honors and Awards).
- Conceptualized, proposed, and lead Project CANDLE (Collaborative Alliance to Nurture Design in Lighting Education), a collaboration between industry and Penn State to advance lighting education. Initiated in 2008, more than \$900K has been raised to date, including \$250K from the IALD Education Trust, \$300K from more than 20 industry partners, and \$353K in cost sharing from Penn State University. Funds support undergraduate and graduate teaching and research.
- Provided leadership in the development of the University of Nebraska's Architectural Engineering program in my roles as the *BS/MAE Curriculum Officer* and chair of the *AE Curriculum Committee*.

- Provided curriculum oversight and leadership at Penn State in my roles as *AE Graduate Program Officer*, *Chair of the AE Graduate Studies Committee*, and member of the *ABET strategy committee*.
- Developed and delivered a comprehensive package of 3-credit courses about lighting design and illuminating engineering, including courses titled: *Lighting I Fundamentals for Design*; *Lighting II Theory, Design, and Applications*; *Lighting III Advanced Design Practice*; *Daylighting*; *Science of Light Sources*; *Color Science for Illuminating Engineering*; *Research Topics in Illuminating Engineering*.
- Developed and delivered study abroad courses titled *Global Experiences in Engineering*, *Global Experiences in Architectural Engineering*, and *Daylight Analysis of Roman Architecture*. Delivered on site in Italy and the UK.
- Developed, contribute to, and/or lead senior capstone design projects through courses titled: *Senior Project*, *AE Interdisciplinary Team Design Project*, and *Graduate Design Project (I and II)*.

## Summary of University Leadership and Service

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- Leadership at Penn State includes periods as the *AE Graduate Program Officer*, chair of the *AE Graduate Studies Committee*, chair of *AE Strategic Planning Committee*, and member of the *AE Executive Committee*.
- Leadership at the University of Nebraska includes periods as chair of the *Curriculum Committee* and *BS/MAE Curriculum Officer*, where I led the department's ABET accreditation.
- Member of six *Promotion and Tenure Committees*.
- Served on 10 *Faculty Search Committees*, including as chair.
- Active participant in committees that develop policies for study abroad and global experiences for engineering students, including *AE Study Abroad Committee*, *College on Engineering Global Leadership in Engineering Education Committee*, *College of Engineering International Program Committee*, and *University of Nebraska Advisory Committee on Study Abroad*.
- Member of numerous other ad-hoc committees related to development, curriculum, facilities, awards, and conference planning.

## Summary of Professional Leadership and Service

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- Board of Directors, Illuminating Engineering Society of North America (IES), Jun. 2008 – Jun. 2011
  - Member, Knowledge Committee, Jun. 2008 – Jul. 2009, Aug. 2010 – Jun. 2011
  - Chair, Knowledge Committee, Aug. 2009 – Jul. 2010
  - Member, Finance Committee, Jun. 2008 – Jul. 2009
  - Member, Direct Public Outreach Task Force, Jan. 2009 – Jul. 2010
- Board of Directors, Lux Pacifica (Representing IES North America), Nov. 2010 – present
- Board of Directors, Nuckolls Fund for Lighting Education, Jun. 2004 – May 2007
  - Member, Strategic Planning Committee, 2006 – 2007
  - Member, Conflict of Interest Rewrite Committee, 2005 – 2006
- Board of Directors, International Association of Lighting Designers (IALD), 1997
  - Student representative
- Editorial Advisory Board, Architectural Lighting Magazine, Oct. 2010 – November 2017
- US Department of Energy, Lighting Physiology Interest Group, March 2018 – present
- US Department of Energy, Next Generation Luminaires (NGL) Competition
  - Judge, 2009 and 2010 NGL Competitions
  - Steering Committee, 2010 NGL Competition
- Illuminating Engineering Society of North America (IES)
  - Member, 1992 – 2013
  - Fellow, 2013 – present

- Member, Medal Award Committee, Jul 2016 – Jun 2017
- Vice-Chair, Medal Award Committee, Jul 2017 – Jun 2018
- Chair, Medal Award Committee, Jul 2018 – Jun 2019
- Member (Advisory), Research Symposium Committee, Feb 2015 – Apr 2016
- Member, Whiteness Task Group, Mar 2014 - present
- Member, Color Metrics Task Group, Aug 2013 – Mar 2017
- Member, Color Committee, Mar 2002 – 2007, Mar 2017 – present
- Member, Board Advisory Committee on Technical Documents, Sep 2011 – Nov 2015
- Member, Appeals Board for RP-1 Office Lighting, Spring 2011
- Member (Advisory), Lighting Criteria Committee, May 2009 – Dec 2011
- Member, Visual Effects of Lamp Spectral Distribution Committee, Aug 1999 – present
- Member, Research Task Force, Feb 2006 – 2007
- Member, Quality of the Visual Environment (QVE) Committee, Jun 1997 – Aug 2010
  - Chair, QVE Workshop Subcommittee, Aug 1998 – Nov 2001
- Member, Centennial Committee, Aug 1998 – Jan 2006
- Member, Educational Materials Committee, Sep 1997 – 2007
- Treasurer and Member, Board of Managers of the IES New Jersey Section, 1998
- Member, International Association of Lighting Designers (IALD), 1995 – Jun. 1997, 1999 – present
  - Member of the Metrics of Quality Committee, Jun. 1996 – Jun. 1997
  - Judge, 23<sup>rd</sup> Annual IALD Lighting Design Awards, 2006
- Member, US National Committee of the International Commission on Illumination, 1999 – 2005
  - Member, Division 3 Lighting Research Advisory Task Group, 2012 – present
  - Member, TC1-80 Research Methods for Psychophysical Studies of Brightness Judgments, 2010 – 2014
  - Member, TC1-56 Improved Color Matching Functions, 2005 – 2009
- Member, Inter-Society Color Council (ISCC), 1999 – 2005

## Honors and Awards

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- Taylor Technical Talent Award, 2013  
Awarded by the Illuminating Engineering Society (IES) to recognize outstanding application papers published in LD+A, LEUKOS, or presented at an IESNA conference. One award has been made each year since 1992.
- Fellow, Illuminating Engineering Society, 2013  
Awarded in recognition of valuable contributions to the technical activities of the Society, to the art of science of illumination, or to related scientific or engineering fields.
- Taylor Technical Talent Award, 2011  
Awarded by the Illuminating Engineering Society (IES) to recognize outstanding application papers published in LD+A, LEUKOS, or presented at an IESNA conference. One award has been made each year since 1992.
- IES Presidential Award, 2011  
Awarded by the President of IES in recognition of service to the society.
- Lightfair Innovation Judge's Citation Award, 2011  
Awarded to the Illuminating Engineering Society (IES) for the IES Lighting Handbook 10th Edition, for which I am one of the four authors/editors. The award is made in special recognition of an innovative product at the judges' discretion.
- Taylor Technical Talent Award, 2005  
Awarded by the Illuminating Engineering Society (IES) to recognize outstanding application papers published in LD+A, LEUKOS, or presented at an IESNA conference. One award has been made each year since 1992.
- Leon Gaster Award, 2005  
Awarded by the Chartered Institution of Building Services Engineers (CIBSE) in recognition of the best application paper published in the journal Lighting Research and Technology. One award has been made each year since 1931.
- University of Nebraska College of Engineering and Technology Holling Family Master Teacher Award, 2003  
A general teaching award open to all faculty ranks.

- University of Nebraska College of Engineering and Technology Distinguished Teaching Award, 2003  
A general teaching award open to all faculty ranks.
- University of Nebraska College of Engineering and Technology Student Advisory Board Professor of the Month, Feb. 2003  
Selected and awarded by the College of Engineering and Technology Student Advisory Board at their discretion.
- University of Nebraska Henry Y. Kleinkauf Family Distinguished New Faculty Teaching Award, 2002  
A general teaching award open to the rank of assistant professor only.
- University of Nebraska Alumni Outstanding Teaching Award, 2001  
Open to all faculty ranks. Awarded by the University of Nebraska at Omaha Alumni Association in appreciation of distinguished teaching in the classroom.
- Pennsylvania State University College of Engineering Dean's Fellowship, 1993 – 1996  
A merit-based fellowship competitively awarded. Open to students pursuing a Ph.D. degree.
- Robert J. Besal Memorial Scholarship, 1993  
An undergraduate merit-based scholarship competitively awarded.
- John Flynn Memorial Scholarship, 1992  
An undergraduate merit-based scholarship competitively awarded.

## Professional Registration and Certification

- Professional Engineer (Architectural Engineering), Nebraska License No. E-11181
- Lighting Certified (LC) by National Council on Qualifications of the Lighting Professions (NCQLP)
- LEED Accredited Professional (LEED AP) by the U.S. Green Buildings Council (USGBC)

## Independent Consulting and Entrepreneurship

Founder of Loucetios LLC (Established 2002), the legal entity for most of the projects listed below.

Lyr Lux, Inc.

Oct 2017 – present

- Co-founder of Lyr Lux, Inc., established to commercialize a LED light source technology developed in my role at Penn State. Initial products to be based on pending patent titled *Light Sources that Increase Object Chroma when Dimmed*, with initial funding from Penn State through a 2018 ENGINEERING for Innovation & ENTREPRENEURSHIP (ENGINE) Grant.

VELUX A/S, Hørsholm, Denmark

Oct 2018 – present

- Consultant for project titled *Color Rendering of Glass*, where we will provide a framework and computational tool to characterize the color rendering performance of architectural glazing.

The Lighting Practice; Philadelphia, PA

Jan 2017 – present

- Consultant for project titled *Evaluation of LED Fixtures used for Roadway Lighting*. My role includes developing methods and protocols for illuminance monitoring, data collection, data analysis, and reporting. Illuminance surveys of two LED and one HPS installation are planned for a period of 10 years.

Pacific Northwest National Laboratory, Advanced Lighting Team; Portland, OR

Jun 2019 – present

- Consultant for project titled *Comparison of Indices of Metameric Mismatch*.

Katten Muchin Rosenman LLP

Mar 2019 – Aug 2019

- Expert consulting including written and oral testimony for a case before the International Court of Arbitration of the International Chamber of Commerce for a dispute related to LED lighting products.

Horton Lees Brogden Lighting Design, Inc.; New York, NY

Sep 2017 – Oct 2018

- Expert opinion letters for ten employees in connection with requests for evidence from U.S. Citizenship and Immigration Services.

- Specialized Engineering Solutions / Altus Architectural Studios; Omaha, NE Nov 2016 – May 2017
- Consultant to SES and Altus on a project for the US Army Medical Facilities Center of Expertise and Standardization, related to developing recommendations and standards for the use of light emitting diode (LED) lighting in US military medical facilities.
- Pacific Northwest National Laboratory, Advanced Lighting Team; Portland, OR Feb 2015 – Sep. 2016
- Assist the PNNL Advanced Lighting Team in the planning and evaluation of lighting mock-ups, designed for the assessment of color and light qualities.
- Alvine Engineering; Omaha, NE
- Exterior lighting survey of the Indianola, IA High School Baseball Field, Indianola, IA Jul & Oct 2014
  - Exterior lighting survey of the Northeastern Oklahoma A&M Football Field, Miami, OK Summer 2013
- Wilmer Cutler Pickering Hale and Dorr LLP Jun 2013 – Mar 2014
- Expert services on a patent infringement case related to solid-state lighting products.
- Soraa, Inc; Fremont, CA Oct 2012 – Jan 2013
- Consultant related to color rendition of electric light sources.
- United States Federal Trade Commission; Washington, DC Jan 2012 – Nov 2012
- Expert services related to Federal Trade Commission v. Lighting of America Inc., Usman Vakil, and Farooq Vakil.
- Reminger Co., LPA; Columbus, OH Nov 2011 – Dec 2011
- Technical consultation related to accidental death.
- Beck, Redden, and Secrest LLP; Houston, TX Jun 2011 – Aug 2011
- Technical consultation related to the street lighting systems in the City of Houston.
- DLDL Consulting; Boulder, CO Nov 2008 – May 2011
- One of four authors and editors (along with David DiLaura, Gary Steffy, and Richard Mistrick) for The Lighting Handbook: Reference and Application, 10th Edition, Illuminating Engineering Society.
- Philips Lighting Company; Somerset, NJ Feb 2008 – Dec 2010
- Assisted with program development, course content, and teaching of programs at the Philips Lighting Application Center.
- Farris Engineering; Omaha, NE
- Exterior lighting surveys for the following sports complexes:
    - Norwalk Sports Complex, Norwalk, IA Fall 2011
    - Carroll Community School District Soccer Field, Carroll, IA Summer 2011
    - Indianola Middle School Football Field, Indianola, IA Summer 2009
    - Clinton High School Football Field and Track, Clinton, IA Fall 2008
    - Dallas Center / Grimes Athletic Complex, Grimes, IA Summer 2006
    - Denison High School Football field, Denison, IA Fall 2005
    - Millard North High School Baseball Field, Omaha, NE Spring 2005
- SRS Designs Inc. (Parent company of Elliptipar and Tambient); West Haven, CT Spring 2009
- Developed and taught a 2-day course on Lighting Fundamentals for new employees in customer service, sales, and product management.

- Lightolier; Fall River, MA Summer 2008
- Developed and taught a 1-day course on Light Sources as part of Lightolier's comprehensive training of new sales associates.
- STERIS Corporation; Mentor, OH 2007 – 2008
- Guidance and technical know-how in the development of next-generation lighting equipment for surgical operating theaters.
- Olsson Associates; Lincoln, NE 2005 – 2006
- Technical oversight and review of a *Comprehensive Outdoor Lighting Study* for the city of Lincoln, NE, which was commissioned by Lincoln/Lancaster County Planning Department as a step toward developing an outdoor lighting ordinance for the city of Lincoln.
- Unlimited Lighting / Ardent Lighting Group; Knoxville, IA
- Exterior lighting survey of South Page School District multi-sport field, South Page, IA. Summer 2006
  - Exterior lighting survey of Corning High School Baseball Field, Corning, IA. Fall 2007
- Alvine and Associates; Omaha, NE Summer 2005
- Lighting study for the Rosenblatt Stadium Playing Field (home of the College World Series), including examining conformity with IESNA and Professional Baseball Association (PBA) lighting standards.
- HDR Architecture, Inc.; Omaha, NE Summer 2004
- Lighting design services for exterior lighting of Joslyn Art Museum, Omaha, NE.
- WJW Fox 8; Cleveland, OH Winter 2004
- Consultation related to high intensity flashing obstruction lights for the WJW broadcast tower in Parma, OH.
- HDR Architecture, Inc.; Omaha, NE Summer 2002 – Fall 2003
- Lighting design services (programming through post-construction) for the First National Bank Wagon Train Park, Omaha, NE (In collaboration with Gary Gordon LLC Architectural Lighting; New York, NY).
- Creative Lighting and Associated Systems, Inc.; Omaha, NE Fall 2002
- Lighting design services for Union Pacific Railroad rail yards and track switches.
- ERCO Lighting USA, Inc.; Edison, NJ Spring 2002
- Troubleshoot ERCO's photometric files in IESNA LM-63-1995 format.
- Lighting Design Alliance; Long Beach, CA Fall 2000
- Environmental impact study related to the incremental increase in urban sky glow that would result from the proposed lighting for the Vincent Thomas Bridge.
- Public Works and Gov. Services Canada; Ottawa, Ontario Spring 2000
- Designed and modeled a retrofit lens for a typical 5' by 5' ceiling coffer so that the system would be compliant with IESNA RP-1.
- Max Deco Interior Designs, Inc.; North Brunswick, NJ. Fall 1997
- Isolated and troubleshoot problems with the existing lighting systems in Sir John's Restaurant.
- Hayden McKay Lighting Design; New York, NY. Fall 1997

- Executed a statistical analysis of physical measurements and questionnaire responses taken as part of a lighting post occupancy evaluation.

Public Works and Gov. Services Canada; Ottawa, Ontario

Aug 1996 – Feb 1997

- Evaluated the computational accuracy of lighting visualization software by statistically comparing the calculated luminance distribution with measured values.

## Book

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- DiLaura DL, Houser KW, Mistrick RG, Steffy GR. Editors. 2011. The Lighting Handbook: Reference and Application, 10<sup>th</sup> Edition. New York, NY: Illuminating Engineering Society. 1,326 pgs.

## Patent (Pending)

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- Houser KW. Light Sources that Increase Object Chroma when Dimmed. International Application for filing in the U.S. receiving office. PCT Application No. PCT/US18/18297. Filed Feb. 15, 2018. (Claims priority to U.S. Provisional Patent Application No. 62/466,035 filed March 2, 2017 and U.S. Provisional Patent Application No. 62/608,590 filed December 21, 2017).

## Papers in Refereed Archival Journals

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My relationship with coauthor when work was performed:

◦University colleague \*Student under my supervision †Outside collaborator

1. David A<sup>†</sup>, Esposito T<sup>†</sup>, Houser K, Royer M<sup>†</sup>, Smet K<sup>†</sup>, Whitehead L<sup>†</sup>. 2019. A Vector Field Color Rendition Model for Characterizing Color Shifts and Metameric Mismatch. LEUKOS. Online before print. <https://doi.org/10.1080/15502724.2018.1554369>
2. Veitch JA<sup>†</sup>, Fotios SA<sup>†</sup>, Houser KW. 2019. Judging the Scientific Quality of Applied Lighting Research. LEUKOS. 15(2,3): 97-114. <https://doi.org/10.1080/15502724.2018.1550365>
3. Esposito T<sup>†</sup>, Houser KW. 2019. A new measure of color discrimination for LEDs and other sources. Lighting Res. Technol. 51(1):5-23. <http://dx.doi.org/10.1177/1477153517729200>
4. Esposito T<sup>†</sup>, Houser KW. 2018. Models of colour quality over a wide range of spectral power distributions. Lighting Res Technol. Online before print. <https://doi.org/10.1177/1477153518765953>
5. Mundinger JJ<sup>†</sup>, Houser KW. 2017. Adjustable correlated color temperature for surgical lighting. Lighting Res Technol. Online before print. <https://doi.org/10.1177/1477153517742682>
6. Royer MP<sup>†</sup>, Houser KW, David A<sup>†</sup>. 2017. Chroma shift and gamut shape: Going beyond average color fidelity and gamut area. LEUKOS. 14(3):149-165. <http://dx.doi.org/10.1080/15502724.2017.1372203>
7. Royer MP<sup>†</sup>, Wilkerson A<sup>†</sup>, Wei M<sup>†</sup>, Houser KW, Davis RG<sup>†</sup>. 2017. Human perceptions of color rendition vary with average fidelity, average gamut, and gamut shape. Lighting Res. Technol. 49(8):966-991. <http://dx.doi.org/10.1177/1477153516663615>
8. Wei M<sup>†</sup>, Houser KW, David A<sup>†</sup>, Krames M<sup>†</sup>. 2017. Colour gamut size and shape influence colour preference. Lighting Res. Technol. 49(8):992-1014. <http://dx.doi.org/10.1177/1477153516651472>
9. Wei M<sup>†</sup>, Houser KW. 2016. Systematic changes in gamut size affects color preference. LEUKOS. 13(1):23-32. <http://dx.doi.org/10.1080/15502724.2016.1192402>
10. David A<sup>†</sup>, Fini PT<sup>†</sup>, Houser KW, Ohno Y<sup>†</sup>, Royer MP<sup>†</sup>, Smet KAG<sup>†</sup>, Wei M<sup>†</sup>, Whitehead L<sup>†</sup>. Development of the IES method for evaluating the color rendition of light sources. Optics Express. 2015; 23(12):15888-15906. [Also selected for inclusion in issue 10(6) of Virtual Journal for Biomedical Optics.] <https://doi.org/10.1364/OE.23.015888>



11. Wei M,\* Houser KW. 2015. What is the Cause of Apparent Preference for Sources with Chromaticity below the Blackbody Locus? LEUKOS. 12(1,2):95-99. <https://doi.org/10.1080/15502724.2015.1029131>
12. Houser KW, Mossman M\*, Smet K\*, Whitehead L\*. 2015. Tutorial: Color Rendering and its Applications in Lighting. † LEUKOS. 12(1,2):7-26. <https://doi.org/10.1080/15502724.2014.989802>  
† equal authorship
13. Wei M\*, Houser KW, David A\*, Krames M\*. 2015. Perceptual Responses to LED Illumination with Color Rendering Indices of 85 and 97. Lighting Res. Technol. 47(7):810-827. <https://doi.org/10.1177/1477153514548089>
14. Fotios S\*, Atli D\*, Cheal C\*, Houser K, Logadottir A\*. 2015. Lamp Spectrum and Spatial Brightness at Photopic Levels: A Basis for Developing a Metric. Lighting Res. Technol. 47(1):80-102. <https://doi.org/10.1177/1477153513503170>
15. Wei M,\* Houser KW, Orland B,° Lang DH,° Ram N,° Sliwinski MJ,° Bose M.° 2014. Field Study of Office Worker Responses to Fluorescent Lighting of Different CCT and Lumen Output. Journal of Environmental Psychology. 39:62-76. <https://doi.org/10.1016/j.jenvp.2014.04.009>
16. Houser KW, Wei M\*, David A\*, Krames M\*. 2014. Whiteness Perception under LED Illumination. LEUKOS. 10(3):165-180. <https://doi.org/10.1080/15502724.2014.902750>
17. Orland B°, Ram N°, Lang D°, Houser K, Kling N, Coccia M. 2014. Saving Energy in an Office Environment: A Serious Game Intervention. Energy and Buildings. 74:43-52. <https://doi.org/10.1016/j.enbuild.2014.01.036>
18. Wei M\*, Houser KW, Allen G\*, Beers W\*. 2014. Color Preference under LEDs with Diminished Yellow Emission. LEUKOS. 10(3):119-131. <https://doi.org/10.1080/15502724.2013.865212>
19. David A,\* Krames M, Houser KW. 2013. Whiteness Metric for Light Sources of Arbitrary Color Temperatures: Proposal and Application to Light-Emitting-Diode Sources. Optics Express. 21(14):16702-16715. <https://doi.org/10.1364/OE.21.016702>
20. Houser KW, Wei M,\* David A,\* Krames MR,\* Shen XS.\* 2013. Review of Measures for Light-Source Color Rendition and Considerations for a Two-Measure System for Characterizing Color Rendition. Optics Express. 21(8):10393-10411. [Also selected for inclusion in issue 8(5) of Virtual Journal for Biomedical Optics.] <https://doi.org/10.1364/OE.21.010393>
21. Fotios SA,\* Houser KW. 2013. Using Forced Choice Discrimination to Measure the Perceptual Response to Light of Different Characteristics. LEUKOS. 9(4):245-249. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2013.09.04.002>
22. Royer MP,\* Houser KW. 2012. Spatial Brightness Perception of Trichromatic Stimuli. LEUKOS. 9(2):89-108. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2012.09.02.002>  
Paper recognized with the Taylor Technical Talent Award, 2013
23. Wei M,\* Houser KW. 2012. Status of Solid-State Lighting Based on Entries to the 2010 US DOE Next Generation Luminaire Competition. LEUKOS. 8(4): 237-259. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2012.08.04.001>
24. Royer M,\* Ballentine N,° Eslinger P,° Houser K, Mistrick R,° Behr R,° Rakos K.\* 2012. Light Therapy for Seniors in Long-Term Care. Journal of the American Medical Directors Association. 13(2): 100-102. <https://doi.org/10.1016/j.jamda.2011.05.006>
25. Royer MP,\* Houser KW, Wilkerson AM.\* 2012. Color Discrimination Capability under Highly Structured Spectra. Color Research and Application. 37(6): 441-449. <https://doi.org/10.1002/col.20702>
26. Houser KW, Wei M,\* Royer MP.\* 2011. Illuminance Uniformity of Outdoor Sports Lighting. LEUKOS. 7(4):221-235. <https://doi.org/10.1080/15502724.2011.10732148>

27. DiLaura DL, \* Harrold RM, \* Houser KW, Mistrick RG, ° Steffy GR. \* 2011. A Procedure for Determining Target Illuminances. LEUKOS. 7(3):145-158. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2011.07.03001>  
Paper recognized with the Taylor Technical Talent Award, 2011
28. Houser KW, Royer MP, \* Mistrick RG. ° 2010. Light Loss Factors for Sports Lighting. LEUKOS. 6(3): 183-201. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2010.06.03001>
29. Houser KW, Fotios SA, \* Royer MP. \* 2009. A Test of the S/P Ratio as a Correlate for Brightness Perception using Rapid-Sequential and Side-by-Side Experimental Protocols. LEUKOS. 6(2): 119-138. <https://doi.org/10.1582/LEUKOS.2009.06.02003>
30. Fotios SA, \* Houser KW. 2009. Research Methods to Avoid Bias in Categorical Ratings of Brightness. LEUKOS. 5(3): 167-181. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2008.05.03.002>
31. Fotios SA, \* Houser KW, Cheal C. \* 2008. Counterbalancing Needed to Avoid Bias in Side-By-Side Brightness Matching Tasks. LEUKOS. 4(4): 207-223. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2008.04.04.001>
32. Protzman JB, \* Houser KW. 2006. LEDs for General Illumination: The State of the Science. LEUKOS. 3(2): 121-142. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2006.03.02.003>
33. Hu X, \* Houser KW, Tiller DK. ° 2006. Higher Color Temperature Lamps May Not Appear Brighter. LEUKOS. 3(1): 69-81. <https://www.tandfonline.com/doi/abs/10.1582/LEUKOS.2006.03.01.004>
34. Hu X, \* Houser KW. 2006. Large-Field Color Matching Functions.† Color Res. Appl. 31(1):18-29. <https://doi.org/10.1002/col.20170>  
† equal authorship
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## Conference Proceedings (Full paper refereed as basis for acceptance)

My relationship with coauthor when work was performed:

◦University colleague \*Student under my supervision \*Outside collaborator

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My relationship with coauthor when work was performed:

<sup>+</sup>Outside collaborator <sup>\*</sup>Student under my supervision

1. Wei M<sup>+</sup>, Houser KW, David A<sup>+</sup>, Krames MR<sup>+</sup>. Effect of gamut shape on colour preference. CIE Conference on Lighting Quality and Energy Efficiency. Melbourne, Australia. CIE x042:2016. 3-5 March 2016. 32-41.
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My relationship with coauthor when work was performed:

\*Outside collaborator

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My relationship with coauthor when work was performed:

°University colleague

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My relationship with coauthor when work was performed:

\*Student under my supervision \*Outside collaborator

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Authors are listed alphabetically. All were outside collaborators. K. Houser was lead author.
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My relationship with coauthor when work was performed:

◦University colleague \*Outside collaborator

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## Contract Reports

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My relationship with coauthor when work was performed:

◦University colleague \*Student under my supervision

1. Orland B<sup>◦</sup>, Houser K, Ram N<sup>◦</sup>, Smyth J<sup>◦</sup>. SOPO Deliverable #32 (Subtask 6.4): Social Media and Serious Games Behavior Intervention. U.S. Dept. of Energy EEB Hub. Feb 2013. 187 p.
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5. Houser KW, Wei M.\* Effect of Spectral Modification on Perceived Brightness and Color Discrimination, Interim Draft Report. PSU Contract No. 128232. Confidential Client. Jul. 2011. 44 p.
6. Houser KW. Project CANDLE Annual Report #2: 2009/10 Academic Year: A summary of the activities from July 1, 2009 – June 30, 2010. IALD Education Trust. Jul. 2010. 54 p.
7. Houser KW, Mistrick RG<sup>◦</sup>, Royer MP\*. Measured Light Loss in Sports Lighting Applications. Confidential Client. May 2010. 297 p.
8. Houser, KW. Pilot Study: Vision-Tuned LEDs. Battelle / Pacific Northwest National Laboratory. Energy & Environmental Division, Energy Policy & Program Analysis Group. Contract #79894. July 2009. 41 p.
9. Houser KW. Project CANDLE Annual Report #1: 2008/09 Academic Year: A summary of the activities from June 1, 2008 – June 30, 2009. IALD Education Trust. Sep. 2009. 19 p.

10. Houser KW. Final Report for Year 2000 Layman Award (Diorama Colorimeter) and Year 2001 Layman Award (Brightness Pilot Study). Feb. 2004.
11. Houser KW, Tiller DK, ◦ Hu X.\* Prototype and Demonstration of Vision-Tuned Fluorescent Lamps. California Energy Commission. EISG Grant No. 52737A/01-25. Final Report. Jan. 2004.
12. Houser KW. Prototype and Demonstration of Vision-Tuned Fluorescent Lamps. California Energy Commission. EISG Grant No. 52737A/01-25. 1st Progress Report (Feb., 2003), 2nd Progress Report (May, 2003), 3rd Progress Report (Sep. 2003).
13. Houser KW. Evaluation of ERCO Lighting's Photometry Files in IESNA LM-63-1995 Format. ERCO Lighting USA. Mar. 2002.
14. Houser KW. Urban Sky Glow and the Lighting of the Vincent Thomas Bridge. Lighting Design Alliance. Oct. 2000.
15. Houser KW, Tiller DK, ◦ Waters CE. ◦ Development of the Design Component of the University of Nebraska's Lighting Curriculum. Year 2000 Nuckolls Fund Grant, 1st Progress Report (Aug., 2000), 2nd Progress Report (Oct., 2000), 3rd Progress Report (Mar. 2001), Final Report (May 2001).
16. Houser KW. Development of an Optically Improved Lens for a Typical 5' by 5' Coffe Luminaire. Contract Report No. EN336-9-0074/001/SS. Public Works and Government Services Canada. Mar. 2000.
17. Houser KW. A Comparison of Luminance Images: Lightscape, Radiance, and an IQCam. Contract Report No. 993-6-018. Public Works and Government Services Canada. Mar. 1997.

## Webinars

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1. Houser KW. Color Preference: What Light Source Spectra are Less Likely to Disappoint? Panelist with Lien M, Rea MS. U.S. Environmental Protection Agency ENERGY STAR LIGHTING Webinar Series. Evaluating Color Quality. July 2016.
2. Royer M, Houser K. Understanding and Applying TM-30-15. U.S. Department of Energy. September 2015.
3. Rahm S, Houser K. Lumens and Footcandles: Should they be the Basis for Lighting Decisions? General Electric. Specifier Technical Tuesdays. July 10, 2007.

## Video Interviews

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1. Reid R (moderator), Houser K, Lien M, Rea M (panelists). National Lighting Bureau Shedding Light on Light TM-30-15 Color Metric. National Lighting Bureau and Edison Report. 26 min. September 2015.

## Professional Presentations (Paper Presentations Excluded)

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1. Wei M, Durmus A, Esposito T, Houser K, Royer M. 2019. Research Methods for Investigating Light Source Color Rendition. Quadrennial Session of the CIE. Washington, DC. 17 June 2019. (Competitively Selected)
2. Royer MP, Houser KW. 2019. ANSI/IES TM-30-18. Presented within the workshop titled Modelling Color Quality of Light Sources. Quadrennial Session of the CIE. Washington, DC. 18 June 2019. (Invited)
3. Esposito T, Houser KW. 2019. Lighting to Counteract the Hunt Effect. Lightfair International 2019. Philadelphia, PA. May 2019. (Competitively Selected)
4. Houser KW. Basic Lighting. Lightfair International 2019. Philadelphia, PA. May 2019. (Invited)
5. Houser KW, Esposito T. Color Rendering Quality under Low Light. Seminario de Iluminación IES XXI. Mexico City. 3 April 2019. (Invited)
6. Houser KW. Choosing and Defining Variables for Lighting Experiments. École Polytechnique Fédérale de Lausanne. Laboratory of Integrated Performance in Design (LIPID). Lausanne, Switzerland. 14 February 2019. (Invited)

7. Houser KW. High Performance Buildings and their Dependence on Light. École Polytechnique Fédérale de Lausanne. Solar Energy and Building Physics Laboratory LESO Lecture Series. Lausanne, Switzerland. 13 February 2019. (Invited)
8. Houser KW. Beyond the Fraction: Efficacy in Applied Lighting. 16th Annual U.S. Department of Energy Solid-State Lighting Research & Development Workshop. Dallas, TX. January 2019. (Invited)
9. Houser KW. LED Spectral Engineering for Photobiological Health. U.S. Department of Energy LED Research & Development Roundtable Meeting. Day 3. Physiological Health. Washington, DC. 13 September 2018. (Invited)
10. Houser KW. Energy Reduction Potential through Dynamic LED Spectral Engineering. U.S. Department of Energy LED Research & Development Roundtable Meeting. Day 2. Lighting Science, Products, and Manufacturing. Washington, DC. 12 September 2018. (Invited)
11. Houser KW. Current Research and Future Developments. Danish Center for Light. Copenhagen, Denmark. 15 August 2018. (Invited)
12. Houser KW. Choosing and Defining Variables for Lighting Experiments. CIE Expert Tutorial and Workshop on Research Methods for Human Factors in Lighting. Copenhagen, Denmark. 13 – 14 August 2018 (Invited)
13. Esposito T, Houser K, Livingston J, Royer M. Specifying Color Quality with IES TM-30. 2018 Annual Conference of the Illuminating Engineering Society. Boston, MA. 9 – 11 August 2018. (Competitively Selected)
14. Houser KW. Basic Lighting. Lightfair International 2018. Chicago, IL. May 2018. (Invited)
15. Houser KW. Specification of LED Lighting Products for Medical Facilities. Lightfair International 2018. Chicago, IL. 8 May 2018. (Competitively Selected)
16. Houser KW. Applying TM-30-15 for Evaluating Light Source Color Rendition. 2018 Electro Expo. Cleveland, OH. 8 March 2018. (Invited)
17. Houser KW. Fracturing the Fraction: Efficacy in Applied Lighting. 15th Annual U.S. Department of Energy Solid-State Lighting Research & Development Workshop. Nashville, TN. January 2018. (Invited)
18. Veitch JA, Fotios S, Houser KW. Workshop 7—Judging the Scientific Quality of Applied Lighting Research. CIE 2017 Midterm Conference. Jeju, Korea. 25 October 2017. (Competitively Selected)
19. Houser KW. Future Research Directions on Color Quality. In Workshop 1—Color Quality. CIE 2017 Midterm Conference. Jeju, Korea. 23 October 2017. (Invited)
20. Houser KW. Applying TM-30-15 for Evaluating Light Source Color Rendition. Crites Tidey and Associates (CTA) Lighting Forum. Grand Rapids, MI. 26 September 2017. (Invited)
21. Houser KW. Specification of LED Lighting Products for Medical Facilities. Crites Tidey and Associates (CTA) Lighting Forum. Grand Rapids, MI. 27 September 2017. (Invited)
22. Houser KW. Applying TM-30-15 for Evaluating Light Source Color Rendition. IES Detroit Section. Detroit, MI. 13 June 2017. (Invited)
23. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2017. Philadelphia, PA. May 2017. (Invited)
24. Houser KW. Evaluating Light Source Color Rendition using IES TM-30-15. IES Chicago Section. Chicago, IL. 26 January 2017. (Invited)
25. Houser KW. Evaluating Light Source Color Rendition using IES TM-30-15. Symposium on Color and Lighting Quality. National Taiwan University of Science and Technology. Color, Imaging, and Illumination Center. 22 November 2016. (Invited)
26. Houser KW. Evaluating Light Source Color Rendition using IES TM-30-15. Repco II. Pittsburgh, PA. 4 – 5 October 2016. (Invited)

27. Houser KW. Evaluating Light Source Color Rendition using IES TM-30-15. Lysets Dag. Copenhagen, Denmark. 7 September 2016. (Invited)
28. Houser KW. Evaluating Light Source Color Rendition using IES TM-30-15. LED Forum. Sao Paulo, Brazil. 18 – 19 August 2016. (Invited)
29. Houser KW. Tuning White Light For Color Rendition and Why it Matters. Electronic Theatre Controls. Middleton, WI. 14 July 2016. (Invited Keynote)
30. Houser KW. Evaluating Light Source Color Rendition using IES TM-30-15. Eaton Advanced Healthcare Design & Lighting Symposium. Peachtree City, GA. June 2016. (Invited)
31. Houser KW. New Method for Evaluating Light Source Color Rendition (TM-30-15). IES Mexico XVIII Seminario de Iluminación. Mexico City, Mexico. 18 – 19 May 2016. (Invited)
32. Royer MP, Houser KW. Spectral Tuning with TM-30-15. Lightfair International 2016. San Diego, CA. April 2016. (Competitively Selected).
33. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2016. San Diego, CA. April 2016. (Invited)
34. Houser KW. Color Perceptions in Response to Systematic Variations in Light Spectra. Substantive Results and Considerations for Dissemination. LumeNet Workshop for PhD Students. 7 April 2016. Ghent, Belgium. (Invited)
35. Houser KW. Color Preference. IES Research Symposium III. Gaithersburg, MD. April 2016. (Invited)
36. Houser KW. The New IES Method for Evaluating Light Source Color Rendition. IES Atlanta Section. Atlanta, GA. March 2016. (Invited)
37. Royer M (moderator), Burkett, David A, Houser K (panelists). Development and Application of the IES Method for Evaluating Light Source Color Rendition. Keynote Luncheon. Annual Conference of the Illuminating Engineering Society. Indianapolis, IN. November 2015.
38. Houser KW. A New Method for Evaluating Light Source Color Rendition. The Korean Institute of Illuminating and Electrical Installation Engineers (KIIEE). Seoul, Korea. November 2015. (Invited)
39. Houser KW. Examples of the Role of Light Spectrum in High Performance Buildings. The Korean Society of Living Environment Systems (KSLES). Seoul, Korea. November 2015. (Invited)
40. Houser KW. Characterizing Color Rendition with the method of the IESNA. LG Electronics. Seoul, Korea. November 2015. (Invited)
41. Houser KW. Examples of the Role of Light Spectrum in High Performance Buildings. Samsung Electronics. Seoul, Korea. November 2015. (Invited)
42. Houser KW. Characterizing Color Rendition with the method of the IESNA. Sejong University. Seoul, Korea. November 2015. (Invited)
43. Houser KW. Examples of the Role of Light Spectrum in High Performance Buildings. Sejong University. Seoul, Korea. November 2015. (Invited)
44. Houser K, Royer M, David A. Evaluating Light Source Color Rendition using the IES TM-30-15 Method. Professional Lighting Design Convention 2015. Rome, Italy. October 2015. (Competitively Selected)
45. Burkett R, Houser K, Royer M. Quantifying Color Rendition: A Path Forward. IALD Enlighten Americas 2015. Baltimore, MD. October 2015. (Competitively Selected).
46. Wei M, Houser K. Color Fidelity Pilot Study. Meeting of CIE TC1-90. CIE Quadrennial Session. Manchester, UK. July 2015.
47. Houser K, Wei M. Summary of IES TM-30-15 IES Method for Evaluating Light Source Color Rendition. Meeting of TC1-91. CIE Quadrennial Session. Manchester, UK. July 2015.

48. David A, Houser KW, Royer MP. Quantifying Color Rendition: A Path Forward. Lightfair International 2015. New York, NY. May 2015. (Competitively Selected).
49. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2015. New York, NY. May 2015. (Invited)
50. Houser KW. Human Factors Research for High Performance Buildings. Pacific Northwest National Laboratory. Advanced Lighting Team. Portland, OR. April 2015.
51. Houser KW. Human Factors Research for High Performance Buildings, with Emphasis on the Response to Optical Radiation. Purdue University. Lyles School of Civil Engineering. February 2015.
52. Miller N (moderator), Clark T, Houser KW, Royer MP (panelists). Determining LLD for LEDs. Annual Conference of the Illuminating Engineering Society. Huntington Beach, CA. October 2013. (Invited)
53. Houser KW. Improvements in LEUKOS and JIES and the Process of Scientific Publication. Annual Conference of the Illuminating Engineering Society. Huntington Beach, CA. October 2013. (Invited)
54. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2013. Philadelphia, PA. April 2013. (Invited)
55. Houser KW. Perceptual Response to Optical Radiation of Different Spectra. Fudan University Department of Illuminating Engineering and Light Sources. Shanghai, China. Sep 2012. (Invited)
56. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2012. Las Vegas, NV. May 2012. (Invited)
57. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2011. Philadelphia, PA. May 2011. (Invited)
58. Houser KW. Color for Architectural Lighting: Connecting the Dots between Light Spectrum, Color Measurement, and Human Perception. IES District 6 Advanced Education Forum. Vancouver, BC, Canada. Mar. 2011. (Invited)
59. Freyssinier-Nova JP, Houser KW, Woods M. Issues in Color. New York Section of IES. New York, NY. Feb. 2011. (Invited)
60. Houser KW. Green Lighting Trends Update 2010: Psychology and Physics of Light and Color. Philips Day-Brite and Philips Lighting Workshop. Philips Lighting and Application Center, Somerset, NJ. Dec. 2010. AIA Accredited. (Invited)
61. Houser KW. Trichromatic Research Update and IES 10e Handbook Preview. Kansas Sections of IES (Kansas City, Topeka, Manhattan). Oct. 2010. (Invited)
62. Houser KW. White Light: The Psychophysics of Trichromatic Mixing. The LED Show. Las Vegas, NV. Aug. 2010. (Invited)
63. Houser KW. Royer MP. White Light: The Psychophysical Case for Trichromatic Mixing. Taiwan Solid State Lighting Conference. Taipei, Taiwan. Jun. 2010. (Invited)
64. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2010. Las Vegas, NV. May 2010. (Invited)
65. Houser KW. The Spectrum of Light: Visions for a Spectrally Tuned Future. Day-Brite Group Innovations Workshop. Tupelo, MS. Feb. 2010. (Invited)
66. Houser KW. The Psychology and Physics of Light and Color. Philips Day-Brite and Philips Lighting Workshop. Philips Lighting and Application Center, Somerset, NJ. Dec. 2009. AIA Accredited. (Invited)
67. Berman SM (panelist), Houser KW (panelist), Oberkircher FD (moderator). The Third Photoreceptor: Some Implications for Human Vision and Lighting. Annual Conference of the Illuminating Engineering Society. Seattle, WA. Nov. 2009. (Invited)
68. Houser KW. Making Sense of Color Rendition. Harrisburg Section of the Illuminating Engineering Society. State College, PA. Oct. 2009. (Invited)

69. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2009. New York, NY. May 2009. (Competitively Selected)
70. Houser KW. Making Workspace Lighting Work. Day-Brite Lighting. Tupelo, MS. Mar. 2009. AIA Accredited. (Invited)
71. Houser KW. Vision is Trichromatic. Heart of America Section of the Illuminating Engineering Society. Kansas City, KS. Oct. 2008. (Invited)
72. Houser KW. Vision is Trichromatic. Flint Hills Section of the Illuminating Engineering Society. Topeka, KS. Oct. 2008. (Invited)
73. Houser KW. Finding Talent: On the Relationship Between Lighting Education and Professional Practice. IALD Annual Conference: Enlighten Americas 2008. Cancun, Mexico. Oct. 2008. (Competitively Selected)
74. Houser KW. The Confluence of Color, Vision, and Lighting Design. Annual Conference of the IESNA Mexico Section: Décima Jornada Internacional de Iluminación. Mexico City, Mexico. Jun. 2008. (Invited)
75. Houser KW. What Lighting Professionals Should Know about Photometry and Colorimetry. Annual Conference of the IESNA Mexico Section: Décima Jornada Internacional de Iluminación. Mexico City, Mexico. June. 2008. (Invited)
76. Houser KW. The Trichromatic Visual Response. 2007 Annual Conference of the Illuminating Engineering Society of North America. Phoenix, AZ. Jan. 2007. (Invited)
77. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2006. Las Vegas, NV. May 2006. (Invited)
78. Houser KW. Illuminating Engineering Education. Centennial Conference of the Illuminating Engineering Society of North America. New York, NY. Jan. 2006. (Invited)
79. Houser KW. Visual Performance Research: An Historical Overview. Centennial Conference of the Illuminating Engineering Society of North America. New York, NY. Jan. 2006. (Invited)
80. Houser KW. The Trichromatic Nature of Vision. Pittsburgh Section of IESNA. Pittsburgh, PA. Oct. 2005. (Invited)
81. Houser KW. Lightfair Institute: Basic Lighting. Lightfair International 2005. New York, NY. Apr. 2005. (Invited)
82. Houser KW. The Trichromatic Nature of Vision. Pacific Energy Center. San Francisco, CA. Nov. 2004. (Invited)
83. Houser KW. Concepts in Photometry and Colorimetry. Pacific Energy Center. San Francisco, CA. Nov. 2004. (Invited)
84. Houser KW. Night Light. Omaha Astronomical Society. Omaha, NE. Oct. 2004. (Invited)
85. Houser KW. Light Pollution. Philips Innovations Roadshow 2004. Omaha, NE. May 2004. (Invited)
86. Houser KW. Speaking Photometrically. Lightfair International 2004. Las Vegas, NV. Mar. 2004. (Invited)
87. Houser KW. Course Portfolio Presentation and Participant in Panel Discussion. Making Learning Visible: Peer Review and the Scholarship of Teaching. Lincoln, NE. Mar. 2004. (Invited)
88. Houser KW. From Color-Matching Functions to Chromaticity. Society of Automotive Engineering. Orlando, FL. Sep. 2003. (Invited)
89. Houser KW. Working With Light. RDG Schutte Wilscam Birge. Omaha, NE. Mar. 2003. (Invited)
90. Houser KW. Is the Lumen a Lemon? Los Angeles Section of IESNA. Los Angeles, CA. Jan. 2003. (Invited)
91. Houser KW. Common Goals: Dark Skies and Good Lighting. Hyde Memorial Observatory 25th Anniversary Celebration. Lincoln, NE. Nov. 2002. (Invited)
92. Houser KW. Light Sources. IESNA ED100. Great Plains Section of IESNA. Omaha, NE. Oct. 2002. (Invited)

93. Houser KW. University of NE Lighting Lab Demonstration. Great Plains Section of IESNA. Omaha, NE. Sep. 2002. (Invited)
94. Houser KW. Understanding Photometrics. Lightfair International 2002. San Francisco, CA. Jun. 2002. (Competitively Selected)
95. Houser KW. Development of the Design Component of the University of Nebraska's Lighting Curriculum. Nuckolls Fund Luncheon. Lightfair International 2002. San Francisco, CA. Jun. 2002. (Invited)
96. Houser KW. Psychological Aspects of Architectural Lighting. Omaha Section of AIA. Omaha, NE. Feb. 2002. (Invited)
97. Houser KW. Vision and Color. Kansas City Section of IESNA. Kansas City, KS. Feb. 2002. (Invited)
98. Houser KW. Photometrics. ERCO Lighting USA. Edison, NJ. Nov. 2001. (Invited)
99. Houser KW. Thinking Photometrically, Part I. Lightfair International 2001. Las Vegas, NV. May 2001. (Competitively Selected)
100. Houser KW.  $V(\lambda)$  Revisited. IESNA Lamp Spectral Effects Subcommittee. Philadelphia, PA. Mar. 2001. (Invited)
101. Houser KW. Lumens and Brightness and Color, Oh My! The Open Plan Working Group. Orfield Laboratories. Minneapolis, MN. Sep. 2000. (Invited)
102. Houser KW. Essential Photometrics. Lightfair International 2000. New York, NY. May 2000. (Invited)
103. Houser KW. Lighting and the Open Plan Office. The Open Plan Working Group. Orfield Laboratories. Minneapolis, MN. Dec. 1999. (Invited)
104. Houser KW. Photometrics 101 Lightfair International 1999. San Francisco, CA. May 1999. (Competitively Selected)
105. Houser KW. Lighting Graphics Software. New Jersey Section of IESNA. Somerset, NJ. Feb. 1999. (Invited)
106. Houser KW. Color Fundamentals and Residential Lighting Applications. Interior Design Society of New Jersey. Somerset, NJ. May 1998. (Invited)
107. Houser KW. Office and School Lighting. New Jersey Section of IESNA. Somerset, NJ. Feb. 1998. (Invited)

## Grants and Funded Projects (Consulting Excluded)

My relationship with coauthor when work was performed:

◦University colleague \*Student under my supervision

1. Houser KW, Mudinger JJ, \* Sloane J. \* Prototype and Demonstration of LED Light Source that Improves Vision at Low Light Levels. 2018 ENGINEERING for Innovation & ENTREPRENEURSHIP (ENGINE) Grant. Penn State University. Jan 2018 – Dec 2018. \$75,000.
2. Houser, KW. Evaluating Adjustable Color Temperature for Surgical Lighting. Steris Corporation. Dec 2016 – May 2017. \$53,000.
3. Henderson R◦, Houser K, Muramoto K◦, Willis D◦. Ginza Skin Care: Analysis of Architectural Skin/Envelope Performances in Ginza, Japan. The Raymond A. Bowers Program for Excellence on Design and Construction for the Built Environment. Jun 2015 – May 2016. \$20,000.
4. Houser, KW. Collaboration on Color. Soraa, Inc. Feb 2013 – Jan 2015. \$198,092.
5. Orland BA, ◦ Lang D, ◦ Ram N, ◦ Houser KW. Occupant Behavior and Decision-Making. Component of: Foley H (PI) Energy Efficient Building Hub. US Department of Energy. \$200,038 of \$129m total. Feb. 2013 – Jan 2014.
6. Houser KW, Ballentine N.◦ Prototype of an Architectural Light Therapy System to Promote Successful Aging in Place. Pennsylvania Housing Research Center. Jul 2012 – Aug 2013. \$30,000.

7. Orland B, ◦ Lang T, ◦ Ram N, ◦ Houser K, and Smyth J. ◦ (Co-Investigators) Occupant Behavior and Energy Efficiency: Well-being, Intervention and Energy Saving Behavior. Component of H. Foley (PI) Greater Philadelphia Regional Innovation Cluster for Energy Efficient Buildings. US Department of Energy. Feb. 2012 – Jan 2013. \$506,000 of \$129 million total.
8. Kavehrad M, Houser K, Kane T.J, Liu Z, Yin S. Collaborative Research: I/UCRC on Optical Wireless Applications. National Science Foundation. May 2012 – Apr. 2016. \$400,000 from NSF + matching funds from industry sponsors.
9. Bonneau RH ◦, Houser KW. Immune Response in Seniors Receiving Light Therapy. Grace Woodward College of Engineering and College of Medicine Collaborative Grant. Jul. 2011 – Jun. 2012. \$30,000 + \$10,000 match from Penn State Smart Spaces Center.
10. Houser KW. Effect of Spectral Modification on Perceived Brightness and Color Discrimination. GE Lighting. Dec. 2010 – Nov. 2011. \$106,437.
11. Foley HC (and 141 other key personnel that includes Houser KW). Greater Philadelphia Innovation Cluster for Energy Efficient Buildings. US Department of Commerce (Economic Development Administration), US Department of Commerce (National Institute of Standards and Technology), US Department of Energy, US Small Business Administration. 2011 – 2016. \$129 million + \$30 million from the Commonwealth of Pennsylvania.
12. Ballentine NH ◦, Houser KW, Mistrick RG ◦, Behr RA ◦, Royer MP\*, (and 8 others). Effect of Bright Light Treatment on Depression of Elders in Long-term Care. Penn State University Clinical and Translational Science Institute (CTSI) Pilot Project Grant. Aug. 2009 – Jul. 2010. \$50,000.
13. Houser KW. Pilot Study: Vision-Tuned LEDs. Battelle Pacific Northwest National Laboratory. Jan 2009 – Aug 2009. \$5,000.
14. Houser KW, Mistrick RG. ◦ Measured Light Loss in Sports Lighting Applications. Musco Sports Lighting. Jul 2008 – Jun 2009. \$69,409.
15. Houser KW. Project CANDLE: Collaborative Alliance to Nurture Design in Lighting Education. 2008 – present. To date, more than \$900K has been raised, including \$250K from the IALD Education Trust, \$300K from Lighting Industry Partners, and \$353K in cost sharing from The Pennsylvania State University.
16. Houser KW. IESNA College/University Grant Program. Illuminating Engineering Society of North America. 2006. \$1,878.
17. Krug N, ◦ Case D, ◦ Houser K, Fischer B, ◦ Hulvershorn K, ◦ Gabb B, ◦ Kuska S. ◦ Greening the Curriculum: Ecological Literacy in the Built Environment. UNL Initiative for Teaching and Learning Excellence. Jan. 2005 – Dec. 2006. \$25,000.
18. Tiller DK, ◦ Houser KW, Waters CE ◦. Enhancing Computer Skills in Engineering Education. Seed Grant for Enhancing Teaching and Learning at UNL. Jan. 2005 – Jun. 2005. \$10,000.
19. Houser KW. Vision-Tuned White LEDs for General Illumination. Lumileds Lighting. Jun. 2004 – Nov. 2007. \$50,255.
20. Houser KW, Waters CE. ◦ Lighting Fundamentals. Interstate Electric. Feb. 2004. \$8,400.
21. Houser KW. A Pilot Study toward Improved Color Matching Functions. UNL Faculty Seed Grant. Jan. 2004 – Dec. 2004. \$10,000.
22. Houser KW, Tiller DK. ◦ Prototype and Demonstration of Vision-Tuned Fluorescent Lamps. California Energy Commission. EISG Grant No. 52737A/01-25. Dec. 2002 – Nov. 2003. \$75,000.
23. Hu X, \* Houser KW. Design and Development of High Efficiency Fluorescent Lamps. Demonstration of Energy-Efficient Developments (DEED), A Program of the American Public Power Association. Nov. 2002 – Dec. 2003. \$4,000.



24. Houser KW, Protzman JB.\* Grant to assist with Prototype and Demonstration of Vision-Tuned Fluorescent Lamps. Undergraduate Creative Activities and Research Experiences (UCARE). Nov. 2002 – Dec. 2003. \$3,000.
25. Houser KW, Samuelson T.\* Grant to assist with Prototype and Demonstration of Vision-Tuned Fluorescent Lamps. Undergraduate Creative Activities and Research Experiences (UCARE). Nov. 2002 – Jun. 2002. \$2,000.
26. Houser KW. Brightness Pilot Study. Layman Fund. May 2001 – Jul. 2002. \$7,485.
27. Tiller DK, ◦ Houser KW, Henze GP. ◦ Metering Residential Hot Water by End Use. ASHRAE Project 1172-TRP. Sep. 2000 – Aug. 2002. \$70,354.
28. Houser KW, Tiller DK, ◦ Waters CE. ◦ Development of the Design Component of the University of Nebraska's Lighting Curriculum. The Nuckolls Fund for Lighting Education. Jun. 2000 – May 2001. \$20,000.
29. Houser KW. Diorama Colorimeter. Layman Fund. Apr. 2000 – May 2001. \$7,275.
30. Houser KW. Lamp Measurement System. New Instructional Equipment, College of Engineering and Technology, University of Nebraska-Lincoln. Jun. 1999 – Aug. 1999. \$81,810.
31. Houser KW. Grant for Lighting Lab. Litecontrol. Aug. 1999. \$1,500.
32. Houser KW. Architectural Engineering Lighting Laboratory. Peter Kiewit Institute Building Fund, University of Nebraska. May 1999 – May 2001. \$227,741.

## Graduate Student Supervision

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### Advisor and Committee Chair for Degrees in Progress

- William Coulter — Ph.D. Pre-candidate, Civil and Construction Engineering, Oregon State University (09/2019 – present)
- Jeffrey Munding — Ph.D. Candidate, Architectural Engineering, Penn State University (08/2015 – present)  
*Improving the Visual Experience of Fine Art under Low Light*

### Committee Member for Degrees in Progress

- Craig Casey – Ph.D. Candidate, Penn State University (08/2011 – present)
- Abdulrahman Aljuhani – M.S. Candidate, Penn State University (08/2017 – present)

### Advisor and Committee Chair for Degrees Completed

#### Doctoral Degrees

- Tony Esposito – Ph.D. Architectural Engineering, Penn State University (12/2016)  
*Modelling Color Rendition and Color Discrimination with Average Fidelity, Average Gamut, and Gamut Shape*
- Minchen Wei – Ph.D. Architectural Engineering, Penn State University (12/2015)  
*Effects of LED Spectral Modifications on Visual Responses*
- Andrea Wilkerson – Ph.D., Architectural Engineering, Penn State University (08/2013)  
*Reallocation of Narrow Bands of Spectral Energy: The Effect on Brightness Perception and Color Preference*
- Michael Royer – Ph.D., Architectural Engineering, Penn State University (08/2011)  
*Tuning Optical Radiation for Visual and Nonvisual Impact*
- Jonathan Brent Protzman – Ph.D. Engineering, University of Nebraska (08/2007)  
*A Study of Transformation of Primaries and Color Matching Function Optimization*

- Xin Hu – Ph.D. Engineering, University of Nebraska (08/2004)  
*A Study of the Variation in Color Matching Functions with respect to Field Size and Primary Set\**  
\*First Ph.D. earned in Nebraska's AE program

#### Master Degrees

- Minchen Wei – M.S., Architectural Engineering, Penn State University (08/2011)  
*Effects of Spectral Modification on Perceived Brightness and Color Discrimination*
- Jonathan Turner – M.A.E., University of Nebraska (12/2007)
- Brandon Rich – M.A.E., University of Nebraska (12/2007)
- Misty Owings – M.A.E., University of Nebraska (08/2007)
- Nick Pandya – M.Eng., University of Nebraska (12/2006)
- Anjan Sarkar – M.Eng., University of Nebraska (08/2006)
- Joseph Vukov – M.A.E., University of Nebraska (08/2005)
- Jonathan Brent Protzman – M.A.E., University of Nebraska (12/2004)
- Shane Hoss – M.A.E., University of Nebraska (12/2004)
- Bradley Carne – M.A.E., University of Nebraska (05/2004)
- Toby Samuelson – M.A.E., University of Nebraska (05/2004)
- Trevor Hollins – M.A.E., University of Nebraska (05/2004)
- Melissa (Jones) Thomsen\*\* – M.A.E., University of Nebraska (05/2003)  
\*\*Member of the first graduating class of M.A.E. students at the University of Nebraska

#### Committee Member for Degrees Completed

##### Doctoral Degrees

- Giorgia Chinazzo – Ph.D. Civil Engineering and Environment. Ecole Polytechnique Federale de Lausanne. Switzerland. (2019)  
*Daylight and Temperature in Buildings: Interaction Effects on Human Responses*
- Sarith Subramaniam – Ph.D. Architectural Engineering, Penn State University (05/2018)  
*Parametric Modeling Strategies for Efficient Annual Analysis of Daylight in Buildings*
- Ling Chen – Ph.D. Architectural Engineering, Penn State University (08/2017)  
*Performance Analysis of Photocontrol Systems Across Shade Settings*
- Reza Sadeghi – Ph.D. Architectural Engineering, Penn State University (05/2017)  
*Study of Building Surrounding Luminous Environment using High-Dynamic Range Image-Based Lighting Model*
- Mohammad Isbat Sakib Chowdhury – Ph.D. Electrical Engineering, Penn State University (12/2014)  
*High-Speed Indoor Optical Wireless Communications—Channel Modeling Methods and Applications*
- Darcie O'Connor – Ph.D., University of Colorado-Boulder (08/2013)  
*Exploration of a Dynamic Lighting Energy Modeling Algorithm for Data Collection Support*
- Steven Ayer – Ph.D. Architectural Engineering, Penn State University (08/2013)  
*Sustainability Education of Engineering Students using Augmented Reality and Simulation Games*
- Michelle Eble-Hankins – Ph.D. Engineering, University of Nebraska (08/2008)  
*Subjective Impression of Discomfort Glare from Sources of Non-Uniform Luminance*
- Jonathan Rathsam – Ph.D. Engineering, University of Nebraska (05/2008)  
*Geometric and Boundary Element Method Simulations of Acoustic Reflections from Rough, Finite, or Non-Planar Surfaces*
- Xin Guo – Ph.D. Engineering, University of Nebraska (08/2007)  
*Occupancy Sensor Networks for Improved Lighting System Control*
- David Bradley – Ph.D. Engineering, University of Nebraska (08/2006)  
*Analysis of Parameter Effects on Sound Energy Decay in Coupled Volume Systems*

### Master Degrees

- Qi Ai – M.S. Architectural Engineering, Penn State University (08/2016)  
*The Impact of Overhand Length, Window Orientation, and Climate on Spatial Daylight Autonomy (SDA) and Annual Sunlight Exposure (ASE) for a Classroom*
- Nablus Aljahadhmy – M.S. Architectural Engineering, Penn State University (08/2015)  
*Toplighting and Energy Saving Implications for Classrooms in Muscat-Oman*
- Ling Chen – M.S. Architectural Engineering, Penn State University (08/2013)  
*Sensor Performance of Advanced Photocontrol Systems*
- Ga Young Kim – M.S. Architectural Engineering, Penn State University (12/2009)  
*Performance Analysis and Guidelines for Lightshelves*