Mark S. Rea, Ph.D.

Professor, Lighting Research Center, Rensselaer Polytechnic Institute
21 Union Street, Troy, NY 12180

Education and Training

1978 Ph.D., Biophysics, Ohio State University
1978 M.S., Biophysics, Ohio State University
1974 M.A., Psychology, Ohio State University
1972 B.A., Psychology, Ohio State University

Research and Professional Experience

1978 - 1985	Senior Research Officer, Division of Building Research, National Research Council Canada, Ottawa, ON
1985 - 1986	Visiting Scientist, Electricity Council Research Centre, Capenhurst, UK
1986 - 1988	Manager, Indoor Environment Program, Building Performance Section, National Research Council Canada, Ottawa, ON
1988 - 2017	Director, Lighting Research Center, Rensselaer Polytechnic Institute, Troy, NY
1988 - 1994	Associate Professor, School of Architecture, Rensselaer Polytechnic Institute, Troy, NY
1988 - 1994	Associate Professor, Department of Psychology, Rensselaer Polytechnic Institute, Troy, NY
1994 -	Professor, School of Architecture, Rensselaer Polytechnic Institute, Troy, NY
1994 -	Professor, Department of Cognitive Science, Rensselaer Polytechnic Institute, Troy, NY

Synergistic Activities

Conducts research in circadian photobiology, mesopic vision, lighting engineering, horticultural lighting, and visual performance. Some current funded research projects include:
- USDA: Novel use of light to suppress a broad group of plant pathogens affecting sustainable production of organically grown crops
-USDA: VitisGen 2: Application of next generation technologies to accelerate grapevine cultivar development
-GSA: Daylight and Health Study
-NIOSH: Warning Beacons for Front Line Service Worker Safety
-ONR: Modeling Human Circadian Response to Light for Optimum Performance in the Field

Awards, Honors and Appointments

1991	Fellow, Illuminating Engineering Society of North America
1998	William H. Wiley Distinguished Faculty Award, Rensselaer Polytechnic Institute
2000	IESNA Medal, Illuminating Engineering Society of North America
2000	Fellow, The Society of Light and Lighting
2010	Walsh-Weston Award, The Society of Light and Lighting
2011	Walsh-Weston Award, The Society of Light and Lighting
2011	Best of Sleep Medicine
2012	Trotter-Paterson Lecture, Chartered Institute of Building Service Engineers

Professional Societies and Working Groups

Illuminating Engineering Society of North America (IESNA),
Society of Light and Lighting (UK),
Optical Society of America
Commission Internationale de l'Éclairage (CIE)

Publications (select list of publications over the past 4 years)

Wood, B., Rea, M.S., Plitnick, B., Figueiro, M.G. 2013. Light level and duration of exposure determine the impact of self-luminous tablets on melatonin suppression. *Applied Ergonomic*, 44(2):237-240.

Figueiro, M.G., Plitnick, B., Rea, M.S. 2012. Light modulates leptin and ghrelin in sleep restricted adults. International Journal of Endocrinology. Vol. 2012, Article ID 530726, doi:10.1155/2012/53072, 6 pages.

Rea, M.S, Figueiro, M.G., Sharkey, K.M., Carskadon, M.A. 2012. Relationship of morning cortisol to circadian phase and rising time in young adults with delayed sleep times. *International Journal of Endocrinology*. Vol. 2012, Article ID 749460, doi:10.1155/2 doi:10.1155/2012/749460, 6 pages.

Zhu, Y., Fu, A., Hoffman, A., Figueiro, M.G., Carskadon, M.A., Sharkey, K.M., Rea, M.S. 2013. Advanced sleep schedules affect circadian gene expression in young adults with delayed sleep schedules. *Sleep Medicine*. 14(5):449-455.

Appleman, K., Figueiro, M.G., Rea, M.S. 2013. Controlling light-dark exposure patterns, rather than sleep schedules, determines circadian phase. *Sleep Medicine. 14(5):456-61*.

Bullough, J. D., E. T. Donnell and M. S. Rea. 2013. Roadway intersections, lighting and safety. *International Municipal Signal Association Journal* 51(5): 32-35, 60.

Figueiro, M.G., R. Hamner, P. Higgins, T. Hornick, M.S. Rea. 2012. Field measurements of light exposures and circadian disruption in two populations of older adults. *Journal of Alzheimer's Disease*. 31 (2012):711-715.

Bullough, J. D., E. T. Donnell, M. S. Rea. 2013. To illuminate or not to illuminate: Roadway lighting as it affects traffic safety at intersections. *Accident Analysis and Prevention* 53(1): 65-77.

Rea, M.S. and J.P. Freyssinier. 2013. White Lighting for residential applications. *Lighting Research and Technology* 45(3):331-344.

Rea, M.S. and J.P. Freyssinier. 2013. White Lighting: A provisional model for predicting perceived tint in "white" illumination. *Color Research & Application.* Article first published online: 9 DEC 2013 | DOI: 10.1002/col.21837.

Rea, M.S, M.G. Figueiro, A.J Bierman, R. Hamner. 2013. Modelling the spectral sensitivity of the human circadian system. *Lighting Research and Technology.* 44(4): 386-396.

Rea, M. S., J.P. Freyssinier. 2013. White lighting. *Color Research & Application. 38(2):82-92;* doi: 10.1002/col.20738.

Freyssinier, J.P. and M.S. Rea. 2013. Class A Color Designation for Light Sources Used in General Illumination. *Journal of Light & Visual Environment*. 37(2&3):10-14.

Rea, M.S., M.G. Figueiro, G. Jones, K. Glander. 2014. Daily activity and light exposure levels for five species of lemurs at the Duke Lemur Center. *American Journal of Physical Anthropology.* 153(1):68-77.

Figueiro, M.G., A. Bierman, M.S. Rea. 2013. A train of blue-light pulses delivered through closed eyelids can suppress melatonin and phase shift the human circadian system. *The Nature and Science of Sleep.* Oct 4:5:133-141.

Rea, M.S. and M.G. Figueiro. 2013. A hypothetical working threshold for acute nocturnal melatonin suppression from "white" light sources used in architectural applications. *Journal of Carcinogenesis & Mutagenesis*. Open Access Journal 4(3) http://dx.doi.org/10.4172/2157-2518.1000150.

Figueiro, M.G., S. Nonaka, M.S. Rea. Daylight exposure has a positive carry-over effect on nighttime performance and subjective sleepiness. *Lighting Research and Technology* (LR&T), 45(4). DOI:10.1177/1477153513494956.

Radetsky, L.C., M.S. Rea, A. Bierman, M.G. Figueiro. 2013. Circadian disruption: Comparing humans to mice. *Chronobiology International.* 30(8):1066-1071.

Rea, M.S., 2013. New benefit metrics for more valuable lighting. *Journal of Light &*

Visual Environment 37(2&3): 41-45.

Freyssinier, J.P., M.S. Rea. 2013. Class A color designation for light sources used in general illumination. *Journal of Light & Visual Environment* 37(2&3): 46-50.

Rea, M.S., 2014. Invited. Opinion: 1924 *Lighting Research Technology.* 46(4):244. DOI: 10.1177/1477153514533258.

Rea, M.S., J. Bierman. 2014 Comparison of a solid-state luminaire to tungsten-halogen lamps for displaying museum object. *Journal of the American Institute for Conservation.* 53(1)33. DOI: 10.1179/1945233013Y.0000000008.

Bullough, J. D., L. C. Radetsky, U. C. Besenecker and M.S. Rea. 2014. Influence of spectral power distribution on scene brightness at different light levels. *Leukos.* 10(1): 3-9.

Figueiro, M.G. and Rea, M.S. 2014. Office lighting and personal light exposures in two seasons: impact on sleep and mood. *Lighting Research & Technology.* 0:1-13. DOI: 10.1177/1477153514564098.

Figueiro, M.G., Plitnick, B.A., and Rea, M.S 2014. Pulsing blue light through closed eyelids: Effects on phase shifting of dim light melatonin onset in older adults living in a home setting *Nature and Science of Sleep* 6:149-156.

Figueiro, M.G., Plitnick, B.A., and Rea, M.S. 2014. The effects of chronotype, sleep schedule and light/dark pattern exposures on circadian phase. *Sleep Medicine*. 15(12): 1554-1564.

Rea, M.S. and Figueiro, M.G. 2014. Quantifying light-dependent circadian disruption in humans and animal models. *Chronobiology International Special Issue: Shift Work*. 31(10): 1239-1246.

Figueiro, M.G., Plitnick, B.A., Lok, A., Jones, G., Higgins, P., Hornick, T., and Rea, M.S. 2014. Tailored lighting intervention improves sleep, depression and agitation in persons with Alzheimer's disease and related dementia living in long-term care facilities. *Clinical Interventions in Aging.* 9:1527-1537.

Rea, M.S. and Bierman, A. 2015. Spectral considerations for outdoor lighting: Consequences for sky glow. *Lighting Research and Technology*. 47(8):920-930.

Rea, M.S. 2015. The lumen seen in a new light. Making distinctions between light, lighting and neuroscience. *Lighting Research and Technology*. 14(3):259-280.

Young, C.R., Jones, G.E., Figueiro, M.G., Soutière, S.E., Keller, M.W., Richardson, A.M., Lehmann, B.J., and Rea, M.S. 2015. At-Sea Trial of 24-h-Based Submarine Watchstanding Schedules with High and Low Correlated Color Temperature Light Sources. *Journal of Biological Rhythms*. 30(2):144-154.

Figueiro, M.G., Plitnick, B., and Rea, M.S. 2015. Research Note: A self-luminous light table for people with Alzheimer's disease. *Lighting Research and Technology*. Published online before print, DOI: 10.1177/1477153515603881.

Figueiro, M.G. and Rea, M.S. 2015. Office lighting and personal light exposures in two seasons: impact on sleep and mood. *Lighting Research and Technology*. 48(3). 2016

Rea, M.S., Bullough, J.D., and Brons, J.A. 2015. Parking lot lighting based upon predictions of scene brightness and personal safety. *Lighting Research and Technology*. Published online before print, DOI: 10.1177/1477153515603758.

Rea, M.S., Mou, X., and Bullough, J.D. 2016. Scene brightness of illuminated interiors. *Lighting Research and Technology*. 48(7): 823-831.

Rea, M.S., and Figueiro, M.G. 2016. The NICU Lighted Environment. *Newborn & Infant Nursing Reviews 16.* (2016) 195-202.

Rea, M. S., J. D. Bullough and J. A. Brons. 2016. Parking lot lighting based upon predictions of scene brightness and personal safety. *Lighting Research and Technology*.

Rea, M. S., J. D. Bullough, L. C. Radetsky, N. P. Skinner and A. Bierman. 2016. Toward the development of standards for yellow flashing lights used in work zones. *Lighting Research and Technology*.

Rea, M. S. and J. D. Bullough. 2016. Toward performance specifications for flashing warning beacons. *Transportation Research Part F: Traffic Psychology and Behaviour* 43(1): 36-47.

Bullough, J. D. and M. S. Rea. 2016. Impacts of fog characteristics, forward illumination, and warning beacon intensity distribution on roadway hazard visibility. *Scientific World Journal* 2016: 4687816.