



COMMISSION INTERNATIONALE DE L'ECLAIRAGE  
INTERNATIONAL COMMISSION ON ILLUMINATION  
INTERNATIONALE BELEUCHTUNGSKOMMISSION

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**PRESS RELEASE**

**October 2004**

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## **1<sup>st</sup> CIE EXPERT SYMPOSIUM ON LIGHT AND HEALTH**

**(Vienna, Austria, September 30 – October 2, 2004) provides an outstanding example of true interdisciplinary collaboration among the worlds of medicine, biology, physiology, psychology and the world of "lighting practice".**

An exciting new discovery, two years ago, of a new photoreceptor in the eye - in addition to the rods used for night-vision and the cones used for colour-vision - was described in some detail at the expert symposium organized by the International Commission of Illumination CIE. That novel receptor represents a "missing link" in describing the mechanism of biological effects as controlled by light and darkness. These effects, being studied in humans over the last 20 to 25 years, include for example the regulation of the melatonin, cortisol and growth hormones and to a certain extent also heart rate. The photoreceptor appears to be essential for maintaining and resetting the biological circadian clock. All these recent discoveries have excited the illuminating engineering and lighting design communities because of the potential to apply this knowledge to design a healthier light environment.

The *CIE Expert Symposium on Light and Health* provided an excellent opportunity for both lighting scientists and photobiologists to explore and exchange the current knowledge regarding the biological effects of light (including ultraviolet radiation). New research findings point to improved, future applications of light and daylighting for a healthier indoor environment. Research results were presented to better understand how the spatial and spectral quality of light may best be used in lighting design.

A common thread ran through many of the presentations, namely that both visible light and ultraviolet radiation have great benefits to health - both directly (short term influence) and indirectly (long term influence); however, exposures to both light and ultraviolet radiation in excess or at wrong moments can produce health risks as well, including risks for some cancer forms. The problem was to find the golden mean and to balance benefits with risks if necessary.

Short-wavelength blue light appears to be most effective in "regulating" the biological clock. Excessive light has long been recognized as a potential hazard to the retina, particularly with regard to short-wavelength blue light which is responsible for instances of eclipse blindness or retinal blind spots produced by staring at the sun. However, the normal aversion to staring at very bright light sources normally precludes a hazard to the retina from intense lamp sources and the sun.

Ultraviolet radiation is essential for health with the production of vitamin D, which is required for calcium metabolism, sound bones and other positive benefits. Ultraviolet seems also of value for other photo-immunological benefits (probably reducing risks for some forms of cancer). Excessive ultraviolet radiation exposure however poses a distinct risk of acute effects such as sunburn as well as delayed effects ranging from accelerated skin aging to severe skin cancer.

Of course some of these detailed biological aspects require further research. The symposium has given some input as to in which areas more knowledge is especially required. Most participants generally agreed that some approaches are already possible and the lighting community needs to know what is currently accepted as scientific fact as opposed to scientific speculations. It was therefore proposed and accepted to organize in 2005/2006 a follow up CIE expert symposium. Here the aim would be to lay the ground work for starting formulating how today's knowledge can be put already carefully into lighting practice. For this the balance of participants with a medical/biological respectively lighting practice background should be more equal in such follow up symposium. The 1<sup>st</sup>, very successful, symposium saw slightly more than 100 participants from 19 different countries with about 65 % medical/biological and 35 % lighting background.

**For Symposium proceedings and further information contact:**

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