



## EDITORIAL

### 2015, A Year of Light!!

### 2015, ¡¡¡un año de luz!!!



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Light is such an inspiring concept! Light evokes different and even contradictory feelings related with life, death, hope, faith, ideas, innovation, destruction, and many others.

Light is everywhere around us, in any device, machine, in every corner of our known World, even in the depth of the darkest places of the universe. Light has fascinated mankind for thousands of years and has been behind some of the most amazing discoveries of the universe in astrophysics, the structure of matter in atomic physics or the biological fundamentals of life, just to mention a few examples.



**Figure 1** UNESCO selected 2015 as the International Year of Light.



**Figure 2** Poster of the project "light4you".

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(J.M. González-Méijome).

The role of light is of course paramount in the field of Visual Science. The eye, as light detector has a paradoxal relationship with light in the sense that light is at the same time a source of vision, can cause blindness, can be

important for prevention or vision restoration. But over the past decades, light has become even more important as an essential diagnostic, therapeutic and surgical tool in all fields of health.

Light has been used by the humankind to unveil the secrets of nature from the distant and massive elements of the known universe to the closest and smallest molecules of life. Light is also associated to the greatest scientists and inventors of our modern civilization from Newton to Einstein and the ideas associated to the discoveries of the fundamental nature of light, or even Edison, that will be forever remembered for his contributions to bring artificial light to our everyday life. Across the centuries, light has been a fundamental element contributing to the understanding to the fundamental sciences, from the development of mathematics and physics to the understanding of chemistry, biology and astrophysics.

One of the major achievements of light as a measuring tool was indeed when light was used in 1919 to prove the Einstein's General Theory of Relativity written in 1915, exactly 100 years ago. This was the reason why the UNESCO selected this year as the International Year of Light and thousands of events have been performed around the World (Figure 1).

I was indirectly involved with a contest where the schools in Portugal were challenged by the Physics Department of the University of Minho (Portugal) to produce a poster related with the concept and applications of light. The winner was the project "light4you" (Figure 2) presented by the secondary school Cedros (Vila Nova de Gaia, Portugal). In this poster, the authors evoke several properties, applications and discoveries related with light. It is fully explained at <http://light4you-project.blogspot.pt/>. Summing up the explanation in the blog, I would highlight from top to bottom, left to right in the poster: dispersion of white

light, refraction and reflection of light beams, result of addition of different primary colors, the four classes of lasers and some of their applications (i.e. military, medical, information, commercial), mirrored initials of the 7 spectral fingerprints of stars as function of their temperature (OBAFGKM), four equations that describe the interaction of light with matter (Wien's, Stefan-Boltzmann's, Planck's and Einstein equations), discoveries related with light for LASER, production of the red (1962), green (1972) and blue (1994) LEDs, color vision deficiencies and the representation of a light guide for communications at the bottom.

There is no doubt that the amazing phenomenon of light will continue enhancing our knowledge of the distant universe, the nature around us and will contribute to our understanding of human biology, including the visual processes, physiology and disease processes to help us to cure and prevent eye disorders that can drive humans to the darkness of blindness. In this sense, new and innovative concepts involving light are continuously evolving, and Optometry is an excellent example of the fields that have a close relationship with light and its relevance for the wellbeing of the humankind. The *Journal of Optometry* will accompany the pace of discoveries for the next decades and generations of Optometrists and Visual Scientists to come.

Stay tuned with us!!!

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