2015 declared the International Year of Light and Light-based Technologies

On 20 December 2013 during the 71st Plenary Meeting of the UN General Assembly 68th Session, year 2015 has been proclaimed as the International Year of Light and Light-based Technologies (IYL-2015). The move has been lauded by a number of scientific societies and institutes. The IYL-2015 partnership, formed in 2010, is a cross-disciplinary educational and outreach project with more than 100 partners from more than 85 countries, accompanied by the UNESCO International Basic Sciences Programme. A resolution welcoming and endorsing an International Year of Light in 2015 was adopted by the UNESCO Executive Board at its 190th session at the UNESCO Headquarters in Paris from 3 to 18 October 2012 (see Box 1 for details). UNESCO formally submitted the resolution to the UN on 6 November 2013. It is an effort of several years and the persuasion of the numerous optics-related organizations, which eventually led to the proclamation. The text of the resolution, which was adopted as part of a more general agenda item on science and technology for development, stated: 'Applications of light science and technology are vital for existing and future advances in medicine, energy, information and communications, fiber-optics, astronomy, architecture, archaeology, entertainment and culture'.

The central role of light needs no elaboration. At the basic level, it provides us vision. At the most fundamental level through photosynthesis (mostly in the green leaves of the plants), light is necessary for the existence of life itself. In human skin, sunlight induces the synthesis of the essential vitamin-D. The science of light is applied in the technological field known as photonics, and this theme addresses the important ways in which photonic devices have an impact on areas such as medicine, communications and energy. When harnessed, the light-based technologies can promote sustainable development and provide solutions to global challenges in energy, education, agriculture, health and well-being.

Light is more than just science and technology. Light matters to all of us. IYL-2015 will create a forum for scientists and engineers and all others inspired by light to interact with each other and with the public so as to learn more about the nature of light and its many applications. IYL-2015 is a tremendous opportunity to ensure that policymakers are made aware of the problem-solving potential of light technology. As light becomes the key cross-cutting discipline of science and engineering in the 21st century, it is essential that the brightest young minds continue to be attracted into careers in this field.

The year 2015 commemorates a remarkable series of important milestones in the history of the physics of light. A number of major scientific anniversaries will be celebrated in 2015, starting with the early work on optics by the medieval Arab scholar Ibn Al-Haytham in 1015; the notion of light as a wave proposed by Fresnel in 1815; the electromagnetic theory of light propagation proposed by Maxwell in 1865; Einstein's theory of the photoelectric effect in 1905; Einstein's embedding of light in cosmology through general relativity in 1915; the discovery of the cosmic microwave background by Penzias and Wilson in 1965; Charles Kao's achievements in 1965 concerning the transmission of light in fibres for optical communication.

IYL-2015 is aimed at stimulating worldwide interest, especially among the youth in light and related science and technology. It will highlight to the citizens of the world the importance of light and optical technologies in their lives, for their futures, and for the development of society. A variety of events and activities will be organized throughout 2015 world-wide. It will be an excellent opportunity to recognize and present Indian contributions to the science of light, both nationally and internationally.

Box 1. Rationale and goals of an International Year of Light

UNESCO Executive Board, 26 September 2012

An International Year of Light will

- improve public understanding of how light and light-based technologies touch the daily lives of everybody, and are central to future global development.
- build worldwide educational capacity through activities targeted on science for young people, help address issues of gender balance and focus in particular on developing countries and emerging economies.
- promote the importance of light-based technology in sustainable development, particularly in healthcare, agriculture and communications so as to enable access to educational opportunities and for improving the quality of life worldwide.
- promote awareness of the interdisciplinary nature of twenty-first century science, and emphasize how interactions between different thematic areas of science will be increasingly needed in future research and education.
- highlight and explain the intimate link between light and art, enhancing the increasing role of optical technology in the preservation of cultural heritage.
- enhance international cooperation by coordinating activities between learned societies, educational establishments and industry, focusing specifically on new partnerships and initiatives in the developing world.
- establish durable partnerships to ensure that these activities, goals and achievements continue in the future beyond the International Year of Light.

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