

# Opinion: Development of lighting research in China



The Society of  
Light and Lighting

The lighting industry in China can be traced back to the 1920s. In 1921, Xiyuan Hu made the first incandescent lamp in China and in 1923, the Shanghai Yaming Bulb Factory started to manufacture incandescent lamps. China is now the largest manufacturer of lighting products, representing about 70–80% of the total world production.

The development of the Chinese lighting industry from incandescent lamps to gas discharge lamps started in 1961, when Professor Zuquan Cai made the first high-pressure mercury lamp at Fudan University's Institute for Electric Light Sources., Professor Cai continued, making a series of light sources (iodine tungsten lamp, long-arc xenon lamp and ultra-high pressure spherical xenon lamp) and carried out research related to gas discharge, electric appliances, lighting design and light source measurement. With the great efforts made by their scientists and researchers, various Chinese lighting technologies, such as the silicon-based yellow LED, mini/micro-LED, OLED and laser diode, have also reached the frontier.

Lighting research in China continued through researchers including Tianxing Shen, Qingxuan Zhan, Huiqian Xiao, Gongxia Yang, Guangxuan Yang, Guanrong Ye, Shaogang Zhang and Ruoci Lin. They studied a wide range of topics – daylighting, architectural lighting design, human vision, human factors, lighting measurement and testing, photometry and colorimetry – and their

work made great contributions to the scientific community. With the initiative of sustainability which began in 1996, lighting research and engineering started to focus on energy efficiency, with incandescent lamps replaced by fluorescent lamps. In the 2000s, LED lighting started to be used for general illumination, notable examples being the 2008 Beijing Olympic Games and 2010 Shanghai Expo. At the same time, researchers started to pay attention to the negative impacts of electric lighting.

Following discovery of the ipRGC, researchers in China also started to investigate how lighting and the luminous environment affect the health and well-being of humans, aiming to develop better solutions, design guidelines and standards for different applications. Since 2020, the COVID-19 pandemic has motivated great progresses in developing equipment using ultraviolet light for disinfection. Some other new applications, such as horticultural lighting, are also being developed.

In the coming years, we are expecting more and more interdisciplinary research, relating lighting with the internet-of-things, big data, cloud computing, to further improve the lighting quality with a lower energy consumption. We are also expecting Chinese researchers and Chinese manufacturers to play more and more important roles in the world.

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