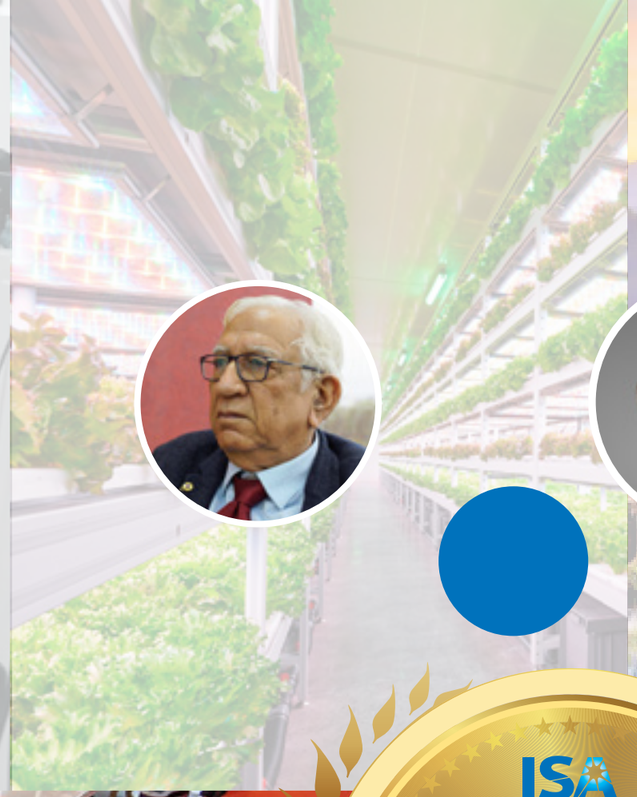
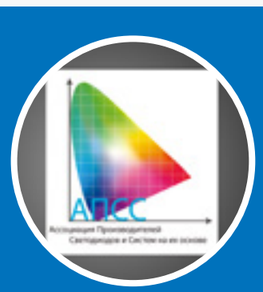


ISA

Global SSL Award of Industry Development Outstanding Contribution

2021

VISION 2024



ISA
International SSL Alliance

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Solid state lighting (SSL) began with the discoveries and inventions in the second half of the 20th century, and continuous breakthroughs were made following the widespread application of semiconductors display at the end of the 20th century. In the new century, great strides have been made in SSL, which becomes a bright new star in the optoelectronic industry.

In recent years, manufacturing technology of semiconductors has matured with the improvement of SSL efficiency and quite a lot of advanced properties. While replacing traditional lighting, SSL has been applied to areas of "beyond lighting", such as agricultural applications, Micro-LED, LiFi smart cities, healthcare, photocuring, energy saving and emission reduction. It is foreseeable that with the concerted efforts of the industry, SSL as well as its technology and products will be extended on a larger time scale and applied in more areas. which will bringing more benefits to the world.

Current achievements and momentum in SSL can never be achieved overnight. Brilliant development is the result that built by many small successes over a long time period. Things by no means easy at the beginning, but will become more arduous subsequently. The current outstanding results of SSL are impossible without the efforts of the entire industry and the entrepreneurs. Recognizing their efforts and achievements will contribute to continue the success and entrepreneurship spirit of SSL.

In view of this, the 12th Executive Member Meeting of International SSL Alliance (ISA) decided to set up the "Global SSL Award of Industry Development Outstanding Contribution" (IDOC), and the selection will kick off in 2021. The award aims to recognize industry leaders, industrial organizations, project teams, institutions, etc. who have made outstanding contribution to the SSL development at regional and global levels within a certain time or historical period during the course of sustainable development of the global SSL.

I sincerely hope that the establishment of this award and the selection of its laureates will inspire more individuals and organizations to keep in mind of their original aspirations and mission, work hard for greater success, and inaugurate a new era of SSL.

Jianlin Cao

Jianlin Cao
President of ISA

ISA Introduction

ISA is a non-for-profit international organization consists of regional alliances, association/society, leading companies and renowned universities in global Solid State Lighting (SSL) field.

The Business of ISA members have covered the whole SSL value chain of upstream, middle stream and downstream of global SSL industry such as epitaxy, packaging application, materials and equipment, design system integration and testing etc.

The currently ISA 77 members, representing more than 4000 individuals & organizations includes major players (such as Signify, Osram, Smsung, GE Lighting, Cree, Veeco, AIXTRON etc.). The output of which covers more than 70% that of global SSL industry.

The ISA Board of Advisers consists of leading experts and academic "Founder" level experts, such as the inventors of blue LED, yellow LED, Red LED, and OLED. Amongst Professor Shuji Nakamura, the Laureate of Nobel Prize in Physics in 2014, is the Co-Chair of ISA Board of Advisors (BOA) and Professor Hiroshi Amano, the Laureate of the Nobel Prize in Physics in 2014 is the member of ISA BOA.

The major works of ISA are: provide services to promote the development and application of global SSL, standardization, annually Global SSL Industry Report, annually SSL Awards, promote international, national and regional cooperation on SSL, etc.

The Mission of ISA

Cooperation with the global resources and efforts, ISA looks forward to fostering a more appropriate "eco-system" for the health development of the global SSL and its application. Echo the needs of the society with more added value services to ISA members. Strive to improve people's living and contribute a sustainable human society.

Global SSL Award of Industry Development Outstanding Contribution

Purpose and Significance

The award was established as decided by the ISA 12th Executive Member Meeting, which aims to promote the global SSL sustainable development by recognizing the industry organizations, project teams, industry leaders, institutions, etc. that have made outstanding contributions to the SSL development at regional/global levels within a certain period of time or historical period.

Qualification of the Application

Industry organizations, project teams, industry leaders, institutions, etc. in the field of SSL who meet above criteria are all qualified to apply. The application content which has won another ISA award before is not qualified to apply this award.

Criteria for Selection

Within a certain period of time or historical period, those who have made outstanding contributions at the regional or global level and have greater influence in R&D of SSL technology, products, SSL application, standard development, and lead the developments of the SSL industry etc.

Frequency and quantity Of Selection

This award is given annually and no more than 5 winners per year in principle. Otherwise, it will be decided by ISA Executive Member Meeting in case of any special needs. The ISA Executive Member Meeting reserves the right not to make an award in any year.

Statement

Global SSL Award of Industry Development Outstanding Contribution

- Accept excellent applications;
- Judged by authoritative experts;
- Worldwide circulation and promotion;
- Welcome elites of the industry to sign up.

ISA
International SSL Alliance

Global SSL Award of Industry Development
Outstanding Contribution

Mr. Shyam Sujan

Biography

He has worked with Philips India Limited for 37 years in various capacities and job profiles from 1964 to 2001. He joined ELCOMA as Secretary General in 2004. Mr. Sujan, besides being an expert in Sales and marketing, is adept in quality management, productivity, HR, Process Management and productivity. He is also an ISO Certification auditor. He is a graduate in Economics from Delhi University, India. He is a Board member of various global associations like Global Lighting Association (GLA), International Solid-State Alliance (ISA), LITES Asia, Sweden Energy Agency among others. Mr. Sujan is an integral part of various Government of India committees and initiatives on Energy Efficiency, Lighting and Standardization including Chairman of the Bureau of Indian Standards (BIS) LED Standards Panel, Member of Advisory Committee for India's Bureau of Energy Efficiency (BEE), Member of Task Force for United Nation Environment Program (UNEP) en.lighten project and Director and Founding member of Electronic Sector Skills Council of India.

Mr. Sujan has played a very important role in bringing efficient Lighting technology to India and was instrumental in introducing CFL technology in 2004 and LED Technology in 2010 to India. To introduce energy efficient lighting, Mr. Sujan prepared and presented white papers and documents/presentations for Government of India to create awareness about energy efficient technologies and technologies. His white papers on CFL in 2006 was implemented in entirety by all levels of Government with great success leading to stupendous growth in manufacturing of CFL Lamps in India, from 20 million pieces in 2004 to 600 million pieces per annum in 2008.

In 2015, a Vision 2020 document created by Mr. Sujan was presented to the Government of India, which addressed the introduction of LED Lighting in India and detailed a plan of execution for replacing traditional and CFL technology in India leading to reduction of power consumption from 18% to 13% by year 2020. The plan proposed by Mr. Sujan was executed successfully. It led to one of the largest LED Retrofit programs in the world with over 500 mn LED lamps distributed and power saved was more than 36000 MW by year 2018.

Mr. Sujan has now prepared a Vision 2024 document for the Lighting Industry of India that proposes to introduce manufacturing and exports of electronics components in India. This Vision 2024 plan invites manufacturers from outside India to set up manufacturing of various components in India, with government support.

Outstanding Contribution Brief

Way back in early 2003-04, the concept of Energy Efficiency was unheard of in India. The objective of lighting was to provide an affordable lamps to masses for basic illumination. The Incandescent Lamp, the most power guzzling lamp was the king product and more than 1 billion pieces were sold every year in India. In 2005, the Secretary General of Electric Lamp and Components Manufacturing Association (ELCOMA), Mr. Shyam Sujan visited Shanghai to attend an international meeting on Efficient Lighting titled "Right Light" which was attended by more than 550 delegates from around the world. Mr. Sujan learnt about Energy Conservation and new technology of Compact Fluorescent Lamps (CFL). He built relationship with various global experts to seek future support on new technology and energy conservation.

Upon return to India Mr. Sujan immediately thought of promoting energy conservation by introducing CFL. With the support of Mr. Girish Pradhan, Joint Secretary, Ministry of Power, CFL were introduced in India as energy efficient product with extensive Government support. India did start manufacturing CFLs but the demand was very low. In order to introduce economies of scale, Mr. Sujan created a white paper on Demand side creation for CFLs in India which was released by India's Bureau of Energy Efficiency (BEE) and promoted the use of CFLs in domestic homes and government offices to change from incandescent lamp to CFL, all shops to change downlights from halogen to CFL. As a result of the efforts of Mr. Sujan in 2004-05, the industry was making 20 million CFL per year which rose to 40 million in 2006 and by 2010 reached 500 to 600 million CFL per annum. The demand for Incandescent Lamp reduced from 1 billion pieces in 2004 to 600 million in 2010.

In 2010 a more energy efficient technology that was 40% more efficient than CFLs was introduced in the form of LED Lighting. But he technology was very expensive at that time. The technology was available but there was no demand, there were no manufacturers of the products in India and there were no specifications or test labs for these products in the country. Mr. Sujan took it upon himself to introduce this technology to India under any cost. All efforts to promote this technology within the government were met with lukewarm results. In 2014 he prepared a Vision 2020 document with which envisaged energy saving of more than 5% (from 18% to 13%) in the Lighting Sector by changing 1.2


Business Standard

Light India 2014 201

Featuring green lighting technol

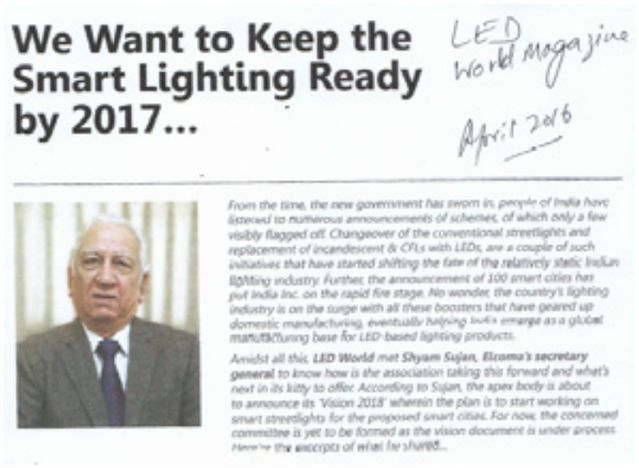
Commercial Feature

18 - 21 September, 2014, Pragati M

A helping hand—Government to promote LED lighting across all lighting applications

Initiatives at the executive level of the government will lead to huge energy saving in the country

Ministry of Urban Development has issued an advisory to all state governments to change existing streetlights to LE lights in the next two-three years



We Want to Keep the Smart Lighting Ready by 2017...

LED World Magazine April 2016

From the time, the new government has sworn in, people of India have listened to numerous announcements of schemes, of which only a few visibly flagged off. Changeover of the conventional streetlights and replacement of incandescent & CFLs with LEDs, are a couple of such initiatives that have started shifting the fate of the relatively static Indian lighting industry. Further, the announcement of 100 smart cities has put India Inc. on the rapid fire stage. No wonder, the country's lighting industry is on the surge with all these boosters that have geared up domestic manufacturing, eventually helping India emerge as a global manufacturing base for LED-based lighting products.

Amidst all this, **LED World** met **Shyam Sujan, Elcoma's secretary general** to know how is the association taking this forward and what's next in its kitty to offer. According to Sujan, the apex body is about to announce its 'Vision 2018' wherein the plan is to start working on smart streetlights for the proposed smart cities. For now, the concerned committee is yet to be formed as the vision document is under process. Here're the excerpts of what he shared...

Various government supported schemes were launched which gave a big boost to manufacturing of LED Lamps in India. The price of LED lamp came down from Rs. 350 (USD 5) in 2014 to Rs. 50 (USD 1) in 2016. Mr. Shyam Sujan's efforts have given huge dividents to development of efficient lighting in India besides large saving of power. The Vision 2020 document had planned to save about 27000MW power, but by end of 2018, more than 36000MW power was saved, which is documented by EESL. The target of 700 mn LED Lamps was completed before 2018 and for 30 million Streetlights was fulfilled by end of 2020. The Government of India has prepared an extension of this program by bringing an additional 30 million solar street Lights to rural India by year 2024.

billion sockets of LED Lamps, 30 million Street Lights and 50 million Down Light in India in a period of 5 to 7 years. Mr. Sujan presented this Vision to Honorable Minister of Power, Mr. Piyush Goyal in 2015 who wholeheartedly supported the proposal and suggested that instead of 2020 the target for the reotrfitting should be completed by 2018.

In order to support the Self Reliance in Manufacturing program of Government of India, Mr. Sujan has once again prepared another plan to promote manufacturing in India though a Vision 2024 proposal. This program will ensure the manufacture at least 80% of electronic components in India and export more than 40% of lighting turnover by the year 2024.

Mr. Sujan has also played very important role in making standards for Lighting products India centric. In order for LED products to perform in Indian conditions like erratic power supply, moisture, hot weather conditions, dust and surge, he worked extensively with the Bureau of Indian Standards (BIS) to modify IEC Standards to Indian conditions. This initiative has made India LED Products sturdiest in the world and there can be used anywhere under any condition.

Mr. Shyam Sujan has also been instrumental in representing India in all International forums and has built relationships with the global lighting fraternity leading to sharing of ideas and introduction of new technology for the benefit of Indian manufacturers.

Jury Comments

- An outstanding figure of two eras of lighting - lamp and LED! A hospitable organizer of conferences in India, an active member of international events. I support this candidate!
- As an economist SHYAM SUJAN promoted energy conservation by introducing new and efficient products to the country, saving energy and contributing to the environment, his vision to prepare manufacture of components and products in several periods helped the country in saving dividends, and he was brilliant contributing also in the very important introduction of solar lights in rural areas,
- SSL development leadership in India, especially through ELCOMA. Supports international cooperation.
- Outstanding contributions to promote solid state lighting in India working with Indian Government over many year, in particular, recent Vision 2020 project achieving tremendous amount of energy, and also has been very active in a number of international organizations (such as United Nations, ISA, Lights Asia, etc.).

ISA
International SSL Alliance

Global SSL Award of Industry Development
Outstanding Contribution

Dr. Ruan Jun

Biography

Ruan Jun, Male, born in December 1973, PhD degree, Professor of engineering, the secretary general of the Zhongguancun solid-state lighting alliance, the vice chairman of China Illuminating Engineering Society (CIES) and new energy lighting specialized committee, the vice chairman of Jiangsu Illuminating Electrical Association, the vice chairman of Jiangsu Illuminating Society, China representative of ISO/TC274 (Light and Illumination) Technical Committee, member of Zhongguancun Standardization Association, and the member of optical radiation measuring committee (CORM).

Since 2003, he has been engaged in strategy research, standard research, and standardization in the field of solid-state lighting. He has participated in the preparation, organization and implementation of solid-state lighting and third-generation semiconductor R&D projects and industrial planning, led the organization of the preparation of the "13th Five-Year Development Plan for Semiconductor Lighting Industry" (2017) issued by the National Development and Reform Commission and 13 other departments, led and participated in nearly 10 national R&D projects, international cooperation projects, applied for more than 10 patents, led and participated in the formulation of more than 10 national standards, group standards, published more than 20 papers, compiled 2 monographs.

He was awarded the "Advanced Individual of Science and Technology Olympics" in 2008, the second prize of the China Standard Innovation Contribution Award (Project Award) in 2016, the "China university-industry cooperation Promotion Award" in 2017, the third prize of the Beijing Science and Technology Award in 2018, and the first prize of the National Science and Technology Progress Award in 2019.

Outstanding Contribution Brief

1. Take charge of the Standardization of SSL industry in CSA

As the leader of the standardization of the China Solid State Lighting Alliance (CSA), Ruan Jun has made active practice and exploration in the standardization of the emerging industry of SSL. In August 2005, CSA organized research on the situation of SSL standardization at home and abroad, and discussed the establishment of the evaluation system of SSL standards in China. In 2007, CSA Standardization Coordination and Promotion Working Group was established, with Ruan Jun as the working group leader, who organized the preparation of the CSA technical specifications. Up to now, CSA has developed more than 80 standards and technical reports, and transformed more than 10 national standards. In 2016, Ruan Jun was awarded the second prize of "China Standard Innovation Contribution Award (Project Award)" by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) and the State Standards Commission.

In addition to organizing the creation of CSA technical specifications, he also served as a member of TC224(National Lighting Standards Committee) and SC3(Light Radiation Measurement Standardization Branch), and participated in the discussion and formulation of a number of national standards. Including GB/T 37031-2018 "LED Lighting Terms", GB/T 32655-2016 "LED Lighting Terms and Definitions for Plant Growth", GB/T 35269-2017 "LED Lighting Application and Interface Requirements for Non-Integrated LED Modules for Road Lighting", etc. The standardization work adapted to the rapid development of SSL technology, product forms and application fields, helped application and promotion of SSL products, helped China become the world's largest LED consumer.

In terms of international standards, in November 2012, the International Organization for Standardization (ISO) announced the establishment of TC274 Light and Lighting Technical Committee. In China, the Secretariat of the CSA served as the leader unit of the joint working group. Ruan Jun serves as ISO/TC 274 committee member and China representative, ISO/TC 274/CAG chief advisory group expert, working group (ISO/TC 274/JWG1, WG2, JWG4, JWG5) registered expert. Since 2014, he has led the Chinese delegation to participate in the member assembly for many years. The working group presented the proposal ISO/TS 21274 "Commissioning of Building Lighting System", Which is the first international standard proposed by China in ISO/TC 274. He is committed to making the national standard and the Alliance standard international.

2. Lead the construction of S&T Joint Innovation platform

In 2011, as the main person in charge, he participated in the establishment of the "State Key Laboratory of SSL Joint Innovation" (hereinafter referred to as the Laboratory). The laboratory has passed the acceptance organized by the Ministry of Science and Technology in 2015, and has been registered in Zhongguancun. In 2017, it passed the evaluation of the Ministry of Science and Technology and was awarded "Excellent". At present, the laboratory has more than 10,000 m2 of experiment and office space; more than 300 sets of R & D, testing equipment, worth 120 million yuan. The laboratory focuses on the industrialization technology, initiate joint research of enterprises, and converts the R & D results into standards, such as street light interface standards, break through the bottleneck for the large-scale application of LED street light.

In 2012, as the person in charge, Ruan Jun established Changzhou Wujin SSL Application Technology Research Institute, which is the branch of the State Key Laboratory in Changzhou, and he was the legal representative and took charge of the institute. After four years of construction, the institute has improved research capabilities, explored R&D mechanism, promoted joint innovation, built the SSL innovation platform in the region of Yangtze river delta, built a team of more than 70 research talents, equipped with R&D equipment worth more than 16 million yuan.

3. Organize and carry out industrial development strategy studies

Ruan Jun has participated in the preparation, organization and implementation of R&D projects and industrial plans related to SSL and the third generation of semiconductor during the "Tenth Five-year Plan", "Eleventh Five-year Plan", "Twelfth Five-year Plan", "Thirteenth Five-year Plan", and participated in the preparation of the "Twelfth Five-year Special Plan for the Development of SSL Science and Technology" (2012), led and organized the compilation of the "13th Five-Year Development Plan for SSL Industry" (2017) issued by the National Development and Reform Commission and 13 other departments.

He has led the compilation of SSL industry policy for many local governments, including The SSL Industry Development Planning of Guangdong province and Jiangsu province, The SSL (LED) Technology Roadmap of Changzhou Wujin, The "Twelfth Five-year" Plan on New Materials Industry of Tianjin Binhai, SSL Industry Research in Beijing, The Development Planning of the LED Industry of Guangzhou Nansha.

He participated in the compilation and publication of "Interpretation of SSL Energy Saving Industry Policy and Standards", "Yearbook of China SSL Industry Development", "Report on China SSL Industry Development ", "Solid State Lighting" and so on.

4. Organize and carry out SSL demonstration projects

As the main person in charge, Ruan Jun has led the organization of SSL demonstration projects. In 2008, CSA organized the major demonstration project of Olympic Games stadium of The Water Cube, promoted the application of LED lighting technology in Olympic venues, and won the title of " Advanced Individual of Beijing Olympic"; In 2009, he participated in the organization of the pilot demonstration project of "100,000 cities and 10,000 lamps" launched by the Ministry of Science and Technology; In 2010, he organized the LED display screen demonstration project in Tiananmen Square, for the 60th anniversary of China National Day, which realized the localization of LED chip to the system. In 2012, he organized the demonstration projects for lighting renovation of the Great Hall of the People and Ziguangge in Zhongnanhai.

5. Build a normalized industrial communication platform

As the leader of the procedure committee, he was fully responsible for the conference planning of "China International SSL Forum" (SSLCHINA series forums), "Greenlighting" series forums and international lighting exhibitions, as well as the content setting and review of reports, to ensure that the forum activities can represent the highest level of international technology and industry. He served as the editorial board member, organized the publication of The Magazine of Solid State Lighting, established the network on China SSL industry (www.china-led.net) and continuously expanding the network coverage, established the laboratory website, the standard committee website and so on.

6. Promote International Industrial Cooperation

In October 2007, he has worked with the World Bank /IFC to promote the project "Lighting Africa" in China, helped capable enterprises access to the African market, carried out global SSL product promotion. In 2012, the Ministry of Science and Technology of China and the Federal Institute of Education and Research of Germany launched the "Sino-Germany SSL Technology R&D Cooperation Plan". As the leading execution unit of the Chinese side, CSA promoted the R&D cooperation projects together with German Institute of Engineers (VDI). The R&D results provided important technical references for the development of LED products with more energy saving, high efficiency and high quality, and also provided important references and basis for the evaluation of energy saving effect of LED lighting products. In 2015, he led the planning and implementation of the "Illuminating the Belt and Road" Plan, and was responsible for the cooperation and coordination of the upcoming demonstration projects and standardization. In 2018, he was responsible for international cooperation with Pacific Northwest Laboratory in the field of "green building materials and lighting products", carried out comparative analysis of international standards for accelerated testing of lighting products, and co-wrote and published the report of "China Green Building Materials Product Technology Roadmap" focus on standards, testing, certification and other aspects. In 2019, he assisted NDRC in the preparation of the "Belt and Road" Green Lighting Action Initiative, to promote international cooperation on green lighting.

Jury Comments

- A wonderful, modest, highly professional leader, one of the key people in the creation of the Chinese LED industry and national standardization, an active participant and organizer of international cooperation.
- Professor and Engineer Ruan Jun has been engaged in strategy research in the field of solid-state lighting, and got several patents, had important participation in standardization of SSL which contributes to science and to economy of the world, worked on the improvement of research capabilities especially in R&D, he has a great merit as a leader in SSL industry policy, He deserves respect and a very big compliment from everyone. His role plays in preparing standard for SSL industry is commendable.
- Outstanding leadership in many aspects of the development of SSL in China; important ISO work; innovative R&D leadership; SSL public policy development and more.
- Very impressive leadership and outstanding contributions over many years to promote SSL in broad range of research and standardization activities in CSA, CIES, and many organizations in China and also internationally (ISO TC274), also establishment of state key laboratories for semiconductor research.

Global SSL Award of Industry Development
Outstanding Contribution

Dr. Guichao Hua

Biography

Guichao Hua, of American nationality, PhD in electrical engineering from Virginia Tech. He currently serves as the chairman and chief technology officer of Inventronics (Hangzhou), Inc., and is a national distinguished expert, as well as a professor-level senior engineer.

He co-founded the American VPT with academician Li Zeyuan and other well-known figures in the power supply industries in 1994, and served as the vice president. He returned to China in April 1999 and founded Yibo Power (Hangzhou) Co., Ltd., and served as the general manager. He founded Inventronics (Hangzhou) Co., Ltd. in September 2007 and served as the chairman. He also founded 4D Bios Inc. in early 2018 and served as the chairman.

Dr. Hua presided over important national and local scientific research projects in the field of drivers for multiple times. He served as the chief scientist of the “Twelfth Five-Year” National Science & Technology Pillar Program, the project leader of the National Small- and Medium-sized Enterprise Innovation Fund, and the sub-project leader of the National Key R&D Program of China, etc. He has made great contributions to the breakthroughs of key technologies in the field of drivers and industrial development in China and even the world.

By the end of 2020, Dr. Hua had published over 70 papers in international academic journals and conferences, and obtained over 30 invention patents in the U.S. and over 100 invention patents in China. He enjoys a high reputation in the international switching power supply field. Dr. Hua was involved in the drafting of standards such as the General Specification of Lighting LED Driver Power Supply. Dr. Hua successively served as the vice chairman of the Lighting Power Committee of China Power Supply Society, a council member of Zhejiang Province Illuminating Engineering Society, and the vice chairman of Zhejiang Lighting Electrical Appliance Association. He is actively involved in promoting the development of the industry.

Outstanding Contribution Brief

Dr. Hua has contributed to the development and application of semiconductor lighting in the world, China and local region in the following three aspects:

Innovate LED drivers, promote the upgrading of traditional general lighting, and contribute to energy saving and emission reduction

Dr. Hua has been committed to the development of China's switching power supply field since 1999. He founded Yibo Power (Hangzhou) Co., Ltd. and developed over 30 series of technologically advanced switching power supply products for world-renowned power supply companies such as Delta, Artesyn, and Ault (now S&L).

1. Focus on the research and development of high-efficiency LED drivers

He founded Inventronics (Hangzhou) Co., Ltd. in September 2007 and began to develop the semiconductor lighting industry, focusing on the R&D, production, sales and technical services for high-efficiency and high-reliability LED drivers. The company mainly provides medium and high power LED drivers which have high technical requirements for production. The related products are mainly used for outdoor functional lighting, industrial lighting, landscape lighting and other fields. After over ten years of development, the company now owns world-class technical strength and product performance, ranking first in China and third in the world in terms of market share.

2. Academic leader for LED drivers

From 2007 to 2020, Guichao Hua served as the chief scientist of "highly reliable LED driver technology development and reliability research" under the "Twelfth Five-Year" National Science & Technology Pillar Program, the project leader of the National Small- and Medium-sized Enterprise Innovation Fund, and the project leader of Zhejiang Province Key Research and Development Program. He led or participated in over ten key research and development projects at the national, provincial and municipal levels, and the project technology was certified as the international advanced technology.

He said: "I am an entrepreneur, but I think I am still a scientist 60-70%."

3. Promote global applications

To promote the global application of semiconductor lighting, he led research and development personnel to develop drivers suitable for 347Vac/480Vac ultra-high voltage outdoor power supply grids in some countries such as North America countries, and drivers suitable for power grids with large power supply fluctuations such as those in India and Africa. Inventronics' LED drivers were applied to famous projects at home and abroad, including the Statue of Liberty in the U.S., Hong Kong-Zhuhai-Macao Bridge which is the world's longest sea-crossing bridge, the 2017 Xiamen BRICS Summit, the 2022 Beijing Winter Olympics, Bangalore International Airport in India, TNB project in Malaysia, PPP project in Brazil, and EESL project in India.

Inventronics has established branches or manufacturing factories in South Korea, Singapore, Brazil, Italy, Japan, Mexico, India and other countries, and formed a global supply chain system and a global distribution system for LED drivers. Inventronics' LED drivers have received certifications in more than 20 countries and regions around the world.

4. Energy saving and emission reduction, and respond to climate change

In 2010, the Inventronics team led by Dr. Hua undertook the overall solution for the energy-saving lighting system at Yintai department store chain in Hangzhou. After replacing the over 4,000 fluorescent tubes and energy-saving downlights with LED luminaires, it can save 491,400 kWh of electricity each year, which is equivalent to saving 196.07 tons of coal for power generation, and cutting carbon dioxide emissions by 513.70 tons per year, according to Zhejiang Daily. Based on this calculation, through the LED lighting renovation project, six Yintai stores in Hangzhou can save nearly 4 million kWh of electricity annually, which is equivalent to saving more than 1,500 tons of coal for power generation and cutting over 4,000 tons of carbon dioxide emissions.

So far, Inventronics products have been exported to more than 100 countries and regions, with cumulative sales in excess of US$ 1 billion. In 2020, Inventronics sold more than 7 million LED drivers, saving about 5 billion kWh of electricity worldwide, which is equivalent to cutting carbon emissions by 4.6 million tons. At the same time, Inventronics LED drivers have an average lifespan of 5-6 years, which greatly slashes the cost of maintenance and replacement of lamps. From 2015 to 2020, the company sold 35.54 million products, indirectly reducing the heavy metal pollution such as "mercury" caused by fluorescent lamps, as it contributes to the global energy conservation, consumption reduction, and emission reduction.

Popularize household/farm container gardening systems and promote the application of LED lighting in horticulture lighting and modern agriculture

1. Focus on the household/farm container gardening system

Dr. Hua founded 4D Bios Inc. in early 2018. Integrating lighting and agriculture, the company focuses on creating cost-effective container gardening systems and LED horticulture factory power control systems. It leverages the semiconductor lighting characterized by high luminous efficiency, low energy consumption, and adjustable spectrum to "customize" the specific spectrum best suitable for the growth of plants. It can provide the light required for plants in different growth stages, adjust the maturity period of fruits, and improve the yield and quality of crops.

At present, Inventronics is a main supplier of household/farm container gardening systems in North America. It has provided over 50,000 household planting machines and farm containers in North America.

He said: "I enjoy working with engineers on technological innovation."

2. Innovate the supplementary lighting system for growth of fruits in the wild field

Under the guidance of Dr. Hua, Inventronics replaced one driver per lighting with one driver for 20-30 LED lightings, and replaced the original voltage of 220 volts with 60 volts. This innovation cuts the energy consumption of plant lighting by 50%, ensures the safety of users, and can be always used for supplementary lighting for fruits growing in the wild.

3. Promote global standardization of drivers

Led by Guichao Hua, Inventronics, as the first and only Chinese LED driver member of the UL Standards Technical Panel (STP), participated in the drafting and release of the UL 8800 Standard for Horticultural Lighting Equipment in August 2019. Inventronics is also actively involved in the formulation of relevant North American standards, and is now a member of the Committee for Standardization of UL8800 and UL1598.

Promote the development of local semiconductor lighting industry

Zhejiang Province is one of the major manufacturing provinces of semiconductor lighting products in China. In 2012, Dr. Hua founded the Zhejiang Semiconductor Lighting Industry Technology Innovation Alliance in concert with dozens of outstanding enterprises and research institutes in the semiconductor field in Zhejiang Province. Dr. Hua serves as the chairman and carries out work in the following areas:

1. Organize local authorities to promote standardization for semiconductor lighting

Dr. Hua took the lead in formulating China's first LED driver alliance standard CSA 008-2011—General Specification of Lighting LED Driver Power Supply, and Zhejiang's first manufacturing group standard on LED drivers T/ZZB 0129-2016—Lighting LED Driver Power Supply.

2. Organize international and domestic conferences to be held in Zhejiang, build local cooperation platforms, and help Zhejiang semiconductor lighting entrepreneurs broaden their horizons and inspire innovative thinking

Inventronics hosted the BRICS Semiconductor Lighting Cooperation Working Group Meeting, International LED Lighting Innovation Technology Seminar, China (Zhejiang) Lighting Supply Chain Support Conference and LED Lighting Innovation Forum, Seminar on Technical Specifications for Explosion-proof Lighting Product Export, Third CPSS Lighting Power Technology Exchange Meeting, the CSA's "Meeting on Common Projects of Multifunctional Pole System for Smart City" and other high-level conferences in many industries. It builds platforms for industry and enterprises to exchange and cooperate in technology application, discuss the opportunities and challenges regarding intelligent lighting technologies, and promote the advanced intelligent lighting technology and products in Zhejiang Province.

Dr. Hua also played host to government departments, associations, and companies related to the semiconductor lighting industry from Yunnan, Jiangxi, Hunan, Jiangsu and other regions, and discussed technology and industry development, and exchanged ideas for win-win cooperation.

3. Play a demonstration and guidance role to promote the development of local vertical smart agriculture

In September 2020, Dr. Hua took the lead in signing a cooperation agreement on modern vertical smart agriculture demonstration base project with the government of Yiting Town, Jinhua, Zhejiang Province. The project includes

the construction of a standard indoor complete-artificial light vertical plant factory and 9 moveable container plant factories. The plant factories were officially put into operation in early November 2020. Vegetables, flowers, spices, fruits and other categories of crops can be cultivated in the plant factories, with an annual yield of up to 75 tons and an average daily yield of about 200 kg. Cabbage, persimmon and other crops grown in the factories are available for sale on the market. Throughout the soilless cultivation process, plant factories adopt intelligent digital technology, which can flexibly adjust the indoor temperature, humidity, and carbon dioxide concentration.

4. Promote the integration of plant lighting and ecological farms into ecological education

He guided and established projects such as ecological classrooms, ecological farms, and research bases, which attract high-level talents and resources across the fields such as innovative STEM (STEM stands for Science, Technology, Engineering, Mathematics. (STEM education is comprehensive education integrating science, technology, engineering, art, and mathematics.) Education, modern agricultural planting, intelligent electronic control, Internet of Things technology and plant nutrition. At present, "ecological classrooms" have been founded in Tianjin, Xinjiang (Shihezi), Inner Mongolia (Baotou) and other places to raise the ecological awareness of elementary school students.

Dr. Hua's achievements in semiconductor lighting drivers over the past 30 years have been universally recognized. He won dozens of awards including China's first APEA Emerging Entrepreneur Award, G20-LED Summit "Local Prominent CEO", 2011-2012 China's Outstanding Scientific and Technological Talents in the LED Industry, China's Overseas Chinese (Innovative Talents) Contribution Award, Fourth China CEO Summit's "Top Ten Growth CEO",

the 8th “Contemporary Inventor” Award of the China Association of Inventions, the First Prize of CPSS Science and Technology Progress, and the Pioneering and Innovation Award of China Lighting Industry.

Jury Comments

- Scientist GUICHAO HUA has developed a world class driver for LEDs – Inventronics - with very high quality and which is evolving according to new technologies, important switching power supply equipment, entered in a different and important field for our times with 4D Bios integrating lighting and agriculture, developed semiconductors for lighting, and standards, besides other achievements. In my opinion he deserves the highest honor.
- Excellent work and innovative products are commendable.
- Leader in R&D regarding SSL drivers; establishing companies; national and international leadership; standardization
- Impressive contributions in the area of electronics and driver for LEDs and SSL products, and the area of horticulture lighting which is still a developing area.

ISA
International SSL Alliance

Global SSL Award of Industry Development Outstanding Contribution

The Association of Manufacturers of LEDs (Russia)

АПСС
Ассоциация Производителей Светодиодов и Систем на их основе

Brief Introduction

The Association of Manufacturers of LEDs (APSS) is the only industry association of manufacturers of lighting equipment in Russia. It consists of 35 members - manufacturers, scientific, technical and engineering organizations, research institutes, universities. In 2020, the Association strengthened its influence in the industry, becoming one of the founders of the Lighting Engineering Consortium, created at the initiative of the Ministry of Industry and Trade. It is designed to become a single dialogue window between business and government. APSS is also a co-founder of the Eurasian LED technology platform "Consortium LEDs", which was created under the Eurasian Economic Community (EEC) and aims at the interstate integration of companies from the EEC countries. APSS experts take an active part in the development (updating) of international technical regulations, standards and regulatory legal acts.

The unique experience accumulated by the APSS representatives in their specializations allows the community not only to actively participate in changes in the legislative framework in order to improve the business climate in the industry, but also to take part in the development of state strategic initiatives.

2020 has become a jubilee year for the Association - 10 years of work.

Outstanding Contribution Brief

One of the key activities of the Association is rule-making and legislative activity, reflecting our role as industry competence and expertise center. APSS has been playing this role in the industry market for the second decade (in 2020, the Association celebrated its 10th anniversary).

As an example, we can cite the technical standard STO.69159079–05–2020 “LED lighting devices. Requirements for a comfortable light environment”. This standard combines and systematizes the requirements for the quantitative and qualitative parameters of lighting. Its preparation involves the analysis of all formulated foreign and national regulations, technical reports, scientific papers.

The Association is involved as an expert in the preparation of regulatory legal acts by the federal authorities, when clarification and updating is required. This was the case, in particular, when working on the Government Decree No. 2255 of December 24, 2020 "On the approval of requirements for lighting devices and electric lamps used in alternating current circuits for lighting purposes", which became a revised version of the RF Government Resolution of the same name from November 10, 2017 No. 1356. This Resolution was adopted in the version jointly prepared by the Association and VNISI - Russian Lighting Research, Design and Engineering Institute named after S.I. Vavilov.

The technical standard “Devices for UV disinfection of air. Safety requirements. Assessment and control of technical and operational parameters” is a document in progress as required by the industry for further development in the field of UV lighting.

APSS actively participates in the formation of the legislative framework in the field of energy efficiency, assessment of the quality and application of lighting, the use of lighting devices within the framework of the state program on import substitution and energy efficiency. APSS participates in the development of national projects in Russia: Safe and high-quality roads, Housing and urban environment, Ecology, Science, Digital economy, International cooperation and export. The Association's proposals formed the basis for the Strategy for the Development of the Electronic Industry of the Russian Federation for the Period up to 2030.

Also, our rule-making and law expertise is in demand within the work in the Eurasian Economic Union (EEC) in order to integrate and create uniform economic conditions for the member countries of the Eurasian Economic Union.

1. APSS is actively working to draw attention to environmental aspects in the lighting market. We participate in the Green Deal of Russia program and in the development of Green Standards. The Russian Green Deal program is a vision of the country's development until 2050 with an emphasis on the ecological sectors of the economy and reducing the burden on the environment. It was authored by Greenpeace experts. We can state that over the past year more and more of our members, and in general companies in the industry, have begun to devote themselves to environmental issues. We consider this to be our merit too!

2. Attracting personnel for the Russian lighting industry. We cooperate with professional universities, organize joint programs and promotions, conduct lectures and workshops, organize internships for students in companies. We believe that the result of this work is an increase in the educational level of students and the fact that an increasing number of them choose to work in our industry in the future.

3. LED production. Over the past year, a number of our members have entered this market. In addition, APSS plans to launch the production of microelectronics within the framework of the Eurasian Lighting Technology Platform (Consortium) within the EEC.

Among the public initiatives of the APSS, the federal movement "Honest Light" can be noted. Project objectives: public control in the industry, support and protection of the interests of honest manufacturers, cooperation with professional communities and experts to exchange experience and implement joint projects.

Here we involve volunteers to monitor the lighting situation in various public facilities. We carry out control of lighting in schools, control over the correct lighting on the roads. Our goal is to ensure the safety of citizens in closed public spaces and on the streets.

Jury Comments

- The APSS has undoubtedly played and is playing a very important role in the national and global development of SSL.
- The Association of Manufacturers of LEDs made very good contributions to lighting in Russia in several aspects during many years and deserves our admiration.
- Important work in creating national and international cooperation
- APPS has made impressive contributions serving as strong links between the SSL industry in Russia and Russian Government and promoted important legislative activities in SSL. The contributions, though, seem to be limited to activities in Russia. Lighting manufacturers' associations in other countries also have made similar efforts through various government programs and regulations and not sure how outstanding the case of Russia is.

ISA
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Global SSL Award of Industry Development Outstanding Contribution

Prof. Rong Haolei

Biography

Prof. Rong Haolei graduated from the School of Architecture of Tsinghua University. He is president of Beijing Qingkong Habitat Photoelectric Research Institute Co., LTD., executive director of China Lighting Association, Director of outdoor Lighting Committee of China Lighting Association, Director of Lighting Application Innovation Center, China Lighting Association, Vice president of Building Electrical Branch of China Building Decoration Association, Vice president of Beijing Lighting Association. Since entering the lighting industry in 2001, he has been focusing on light environment as his main research direction, covering application fields such as urban lighting planning, architectural lighting and lighting design, landscape lighting design, light pollution prevention and so on. He is the winner of the first China Urban Planning Youth Science and Technology Award. He participated in the compilation of many local standards in Beijing, Guangzhou, and Changzhou. He has been invited to give keynote speeches at many international conferences. He published monographs “Special Planning and Design of Urban Lighting/Urban Lighting Engineering Series”, and translated works of “Architectural Lighting Design”, and “Lighting Design Fundamentals”. And he published many papers in national journals.

Prof. Rong Haolei as the person in charge, he presided over the overall planning of urban lighting in Beijing and Guangzhou. He participated in the detailed planning of lighting for Chang'an Avenue in Beijing, Future Science and Technology City, Nanchang One River and Two Banks, and Wuhan Two Rivers and Four Banks. At the same time, he participated in the lighting design of Tiananmen Gate Tower, National Museum, Great Hall of the People and other buildings. Also participated in the landscape lighting design of the Beijing Olympic Forest Park, and the overall design of the Guangzhou International Light Festival.

Outstanding Contribution Brief

1. Application innovation, leading the research and development of semiconductor products.

Through project practice, Professor Rong Haolei has continuously argued the rationality between products and applications, insisted on design innovation, proposed new lighting effect requirements, challenged the matching product performance and technical reliability, and promoted the technical innovation of products and the development of new types of products from the application side. At the early stage of LED development in China, we have combined with the project application and led a number of technical breakthroughs in product development: in particular, Professor Rong Haolei presided over the research and development of the 2.5-degree long-throw light applied to the top of the Tiananmen Tower in Beijing, China in 2010, which guided the direction of product development to a very narrow angle; the controllable light point light source applied to the G20 media façade in Hangzhou, which triggered the product to cope with the application of multiple situations; landscape The combination of ceramic substrate chip technology and LED luminaire structure heat dissipation optimization has resulted in new small volume and high power buried LED product type. The related R&D product types all provide ideas and directions for later R&D, and the innovation from the design and application side has led to the continuous optimization and innovation of semiconductor products. Recommended by the partners, some national semiconductor lighting design field peers of the above products, projects to visit, played a demonstration role.

2. Standards preparation, standardization of semiconductor product technology standards.

In the early days, China's domestic landscape lighting industry is immature, new types of product technology standards are not uniform, Professor Rong Haolei in the continuous design innovation and product development at the same time, continuous accumulation and precipitation, focus on standardization of experience summaries and sharing. He presided over or participated in more than 20 national standards, industry standards, local standards and group standards, such as "Outdoor Interference Light Restriction Specification", "Guide to Quantification and Control of Landscape Lighting Effect", "Urban Lighting Construction Planning Standard", "General Technical Specification for LED Driver Power Supply for Landscape Lighting", "Basic Information on Intelligent Street Lighting for Urban Public Facility Services", etc. And serve as the CSAS landscape lighting working group leader, to promote the preparation of semiconductor group standards, specifications, to contribute to the unification of technical standards of domestic semiconductor products, technology and application of matching enhancements.

3. Academic research, guiding the frontier direction of the semiconductor industry.

For the frontier design and product application, set up internal projects or strive for national projects funded by the way, continue to carry out research on lighting application topics, and achieve a number of research results. Professor Rong Haolei has published many papers involving product performance research, such as "Analysis of the dispersion problem in LED white lighting fixtures", "Performance evaluation of LED stage lighting fixtures", "Research on the selection of light sources by LED spectral tunable devices", and "Value orientation of urban landscape lighting", "Hot spots of lighting engineering planning and design", and many other papers involving the development direction of the industry. Published monographs "Urban lighting special planning and design / urban lighting engineering series", "urban night lighting engineering design / urban lighting engineering series"; translation of "architectural lighting design", "lighting design fundamentals" and other books to guide the development of industry design. These theoretical research on the industry pain points demand in-depth analysis, guide the direction of the technical development of the product, to promote product and industry project innovation. Professor Rong Haolei abroad to participate in academic conferences to introduce the promotion of these research results, for international counterparts to play a reference and inspirational role.

4. Tools development, promote the benign development of the domestic semiconductor industry.

Dedicated to the improvement of production efficiency and the authenticity and transparency of technical information for a wider group of people, Professor Rong Haolei has been cooperating with industry third-party platform organizations for many years to carry out software tool development, and has obtained more than 10 soft publications, such as landscape lighting fixture information library query software (2019SRO0003656), conventional illuminated surface material library software based on virtual reality technology (2019SRO0003155), virtual reality technology-based luminaire library software (2019SRO0005189), and big data-based night lighting brightness instance database query software (2019SRO0003425). Through the testing-based lighting fixture information query software, users can quickly and accurately obtain real product data information to facilitate product screening; product technical parameters can be compared horizontally and vertically in the system to analyze the differences in products and promote R&D enhancement; related software development based on virtual reality technology allows users to foresee the real lighting effect of lamps and lanterns to avoid low-quality products using information not The software development based on virtual reality technology allows users to foresee the real lighting effect of lamps and lanterns, avoiding low-quality products from using information asymmetry to obtain the market. Several software has been promoted to the market and received positive comments on the application, through the continuous iteration of the software database information, guiding the direction of quantitative parameters to assess the performance of products, product competition tends to focus on the technology and innovation for the application, rather than the price or commercial resources competition. It is of value to the whole industry to improve the manufacturing level and also promotes the benign development of the whole industry. more than 20 representatives from Brazil, India, Russia, South Africa, the United States, Belarus, Malaysia, Vietnam, Thailand and Myanmar visited Professor Rong Haolei's institution on July 8-9, 2019, to learn more about learning these tools and software.

Simulation effect of Xi'an project

Real scence of Xi'an project

Jury Comments

- Professor RONG HAOLEI led the application of innovative ways to build a better environment, shared his knowledge to develop new standards, published books and papers, contributed to the dissemination of the lighting sciences teaching at schools. He deserves a high score.
- Good Job in R&D innovations in semiconductors and other Lighting project designs.
- Leadership of significant public lighting design in Beijing, Guangzhou and other cities, emphasizing SSL. Outstanding work on lighting standards.
- Impressive contributions in urban lighting and architectural lighting design.

ISA
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Global SSL Award of Industry Development
Outstanding Contribution

Mr. Siegfried Luger

Biography

Siegfried Luger is the Founder and CEO of Luger Research e.U. (www.lugerresearch.com), Founder and Publisher of the LED professional trade journal “LED professional Review” (www.led-professional.com), the Trends in Lighting Blog (www.trends.lighting), the Global Lighting Directory (www.GLD.lighting), Director and Program Manager of the LED professional Symposium +Expo | Trends in Lighting Forum &Show (since 2020 transformed into LpS Digital, www.LpS-Digital.global).

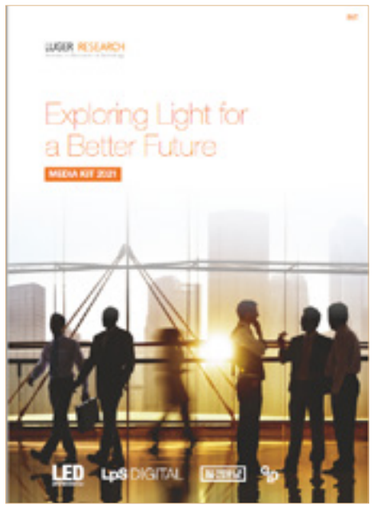
Before establishing his independent company, he worked as an R&D Manager for 14 years at Zumtobel Group. He has been involved in various areas of Solid-State research during his career and is an expert in LED lighting, Design for Six-Sigma (DFSS, Six-Sigma Black Belt), and TRIZ (Systematic Innovation Methodology, Master Level 3). He holds a degree in Electronics & Telecommunications as well as an Executive Masters in Business Engineering. He has over 50 patents in the field of lighting. Since 2016 Siegfried Luger is a Member of the Advisory Board of the International Solid-State Lighting Alliance (ISA), the most relevant SSL industry and research organization, and a Member of the Board of Stakeholders at Photonics21. Mr. Luger is also a Member of the Good Light Group and a Member of the European Photonics Industry Consortium.

Outstanding Contribution Brief

Under the general motto "Exploring Light for a Better Future" Siegfried Luger has supported the lighting sector and its stakeholders in three main fields: Information and Collaboration, Research and Development, and Knowledge and Showcase. Siegfried Luger has been active in the lighting sector since 1989; since 2001 through Luger Research e.U.

1. Fostering Information and Collaboration in Solid-State Lighting

With over 60,000 readers, the publications of Luger Research e.U. are among the leading lighting industry and design platforms worldwide. Since 2006, Siegfried Luger has published 86 issues with approximately 7,000 pages on the lighting industry, covering deep technological and user-specific topics. The web articles and social media posts are appreciated by over 30,000 followers worldwide. The high demand for quality and topicality of the content led to an established global readership.



2. Technical Achievements in the Field of LED Lighting R&D

Sustainability is a crucial focus in the design of new solutions for Siegfried Luger. Three years ago, for example, he and an outstanding team of researchers won the EU-funded Repro-Light research project. Over three years, the team found new principles in the field of Circular Economy. The researchers found groundbreaking research results in the area of Human-Centric Lighting. In addition to the technical contributions, Mr. Luger was responsible for the project process, innovation impulses, and communication. The project achieved a strong international impact and has already led to follow-up projects and new products.

Research Team – Participants

Repro Light Research Team

3. Organizational Work on LED professional Symposium +Expo (LpS)

In addition to publications, Siegfried Luger has distinguished himself by organizing lighting events. Since 2011, he has managed the LpS Symposium in Europe, a leading lighting technology conference with a parallel trade fair. Nobel laureate Nakamura also gave an opening speech as a keynote speaker. Last year, the LpS event was virtually transformed and became the world's first digital lighting conference and exhibition.

Exhibition

Keynote Speaker Professor Shuji Nakamura

Keyspeakers Professor Shuji Nakamura

Jury Comments

- The creator and organizer of the most successful scientific and technical conference on LEDs in Europe! His energy, dedication and talent have made and are making a huge contribution to the global SSL agenda!
- As an engineer Siegfried Luger has more than 50 patents in the field of lighting, build as a publisher the Luger Research, contributing as a leader to the lighting industry and design platforms worldwide, participated in developing new principles in the field of Circular Economy and led lighting technology conferences in Europe. Due these and more he deserves our admiration.
- The project on Humen Centric Lighting is a good work. Additional work in project process, innovation impulses and communication is creditable.
- Very impressive contributions in disseminating broad range of news and information on LED and SSL technologies worldwide over 15 years through publication of *LED Professional Review*. Not sure how much impact was with their symposia and exhibitions.

Global SSL Award of Industry Development Outstanding Contribution

2021 AOA Jury Panel

Evgeny Dolin

Past Director General of LED and LED-based Systems Manufacturer's Non-profit Partnership (NPRPSS) of Russia

Guoqi Zhang

Professor of Delft University of Technology

Co-Chair of ISA Board of Advisors

Isac Roizenblatt

Technical Director of the Brazilian Association of the Lighting Industry (ABILUX)

Member of ISA Board of Advisors

Ling Wu

President, China SSL Alliance (CSA)

Member of ISA Council of Management

Norman Bardsley

CEO of Bardsley Consulting

Chief Analyst of ISA

Shyam Sujan

Secretary General of the Electric Lamp and Component Manufacturers Association of India (ELCOMA)

Member of ISA Council of Management

Warren Julian

Past President of Illuminating Engineering Society of Australia and New Zealand (IESANZ)

Emeritus Professor, University of Sydney

Member of ISA Council of Management

Yoshi Ohno

Doctor, NIST Fellow, National Institute of Standards and Technology, USA

Past president of CIE

Member of ISA Board of Advisors

Chairman of ISA TCS