

Second Announcement & Call for Papers

14th International Symposium on the
Science and Technology of Lighting

LS14



Grand Hotel Como, Como, Italy
June 22nd – 27th, 2014

*(Web Registration & Paper Submission
open Friday, January 31st, 2014)*

www.ls14-symposium.org

FAST-LS



Foundation for the **A**dvancement of the
Science & **T**echnology of **L**ight **S**ources

Organizing Foundation



Technical Sponsors & Supporting Associations

IEEE Transactions on Industry Applications

 **Journal of Solid State Lighting**
a SpringerOpen Journal



Conference Associated Journals



Travel Partner

www.ls14-symposium.org

14th International Symposium on the Science and Technology of Lighting

Organizing Secretariat: Centro Cultura Scientifica "A.Volta"

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Aim of Symposium

The LS Symposia have been held regularly since 1973 in venues in Europe, the USA, China and Japan. Their aim is to provide an opportunity for the worldwide community of scientists, engineers and other professionals engaged in both fundamental and applied aspects of lighting to meet in an informal, non-commercial, environment to gain a comprehensive overview of current activity in the field and important emerging issues.

The quality, scope and timeliness of the presented work is of interest both to people active already in lighting related research and technology and to those who are newcomers to this exciting dynamic field and wish to be educated and inspired. Emphasis throughout is on presenting the latest developments in light source science and technology, lighting science, and lighting applications and design all in a friendly and informal environment providing plentiful opportunities for discussion of current progress and issues in this exciting field .

Structure of Symposium

The heart of the meeting comprises themed plenary sessions comprising invited and landmark presentations, the latter selected from the contributed papers, each including generous poster sessions. The frequent poster sessions are an important element of the symposia and, helpfully, all posters are displayed throughout the symposium.

The widespread adoption of SSL technologies with their ability to define spectral output more freely than the technologies they are displacing, and the generally greater scope for innovation in lighting system design that they provide, has highlighted the need for developments in important areas that interface with lighting such as colour science, perception psychology, physiology, medicine, and numerous important lighting-related applications such as in agriculture and horticulture. The interests of these previously often separate research communities have become now shared interests and LS14 will highlight progress in many of these important areas.

Symposium Venue

The symposium will be held in the Auditorium "Spazio Como" and Convention Center connected with the Grand Hotel di Como, located in Cernobbio, just 3 km from Como city centre. There is accommodation available at the venue itself or in the town and it can be reached from the town by regular ferries on the lake, by bus, car or on foot using an attractive lakeside route.

The great visual appeal of the mountain and lake scenery of Lake Como and its environs, its diverse transport links, and its offering a superb blend of art, history, and delicious Italian cuisine have combined to make Como an important location for international scientific meetings. The conference organizers at Centro Cultura Scientifica "A.Volta" have long experience of hostings events such as LS14.

LS14 Symposium Structure

LS14 will follow closely the structure that has evolved and proved very popular over the more than 40 year history of the symposium series. The conference will begin early on evening of Sunday, June 22nd, following registration, when two distinguished speakers will present keynote lectures chosen to be of general interest to delegates. The morning and afternoon plenary sessions that comprise the major part of the conference begin on the morning of Monday, June 23rd, and continue through until the afternoon of Thursday, June 26th. Each of the plenary sessions has a similar structure with opening plenary Invited and Landmark oral presentations, a break for a poster session and refreshments, and then a closing group of plenary Invited and Landmark oral presentations. The only exceptions to this are the operation of two parallel oral sessions on Tuesday morning and afternoon and a single session of oral presentations on Wednesday afternoon because of social events later in the afternoon and evening.

The session on Thursday morning is being co-organised with the Associazione Italiana Colore and comprises a series of Invited papers, with again an intervening poster session and refreshment break, that will provide a wide ranging view of current issues in colour science, especially those that are being highlighted by the widespread adoption of SSL lighting technologies. The new technologies offer user-definable spectral power distributions in comparison to thermal and discharge light sources and the session, in part, will explore the consequences.

On Friday, June 27th, following the last of the formal LS14 sessions on Thursday afternoon, Workshops and Tutorials are being organized to provide educational and training opportunities in the new lighting technologies. They are being designed for people from industry, commerce and educational institutions who are unfamiliar with the components of SSL technologies, how they are assembled to create novel light sources, and how their properties, that are very different from those of traditional light sources, may be exploited in innovative lighting technology and applications.

| LS14 Outline Schedule | | | | |
|---|--|-------|---|---|
| | Morning | | Afternoon | Evening |
| Sunday June 22 nd | | | Registration | Keynote Lectures & Welcome Reception |
| | Conference Sessions | | Conference Sessions | |
| Monday June 23 rd | Advances in Lighting Technologies and their Applications | Lunch | LED Systems & Metrology | Get-Together Party |
| Tuesday June 24 th | Novel & Legacy Light Source Technologies | Lunch | Light Sources Materials | |
| | Intelligent Lighting Systems | | Illumination: Applications & Current Issues | |
| Wednesday June 25 th | OLED systems | Lunch | Non-Visual Lighting Applications (<i>short session</i>) | Lake Cruise & Banquet |
| Thursday June 26 th | Colour Science & Technology ¹ | Lunch | Human-Lighting Interface & Lighting Design | |
| | Workshop-Tutorials | | Workshop-Tutorials | |
| Friday June 27 th ² | Step-by-Step Development of LED-based Products | Lunch | Design of Lighting Systems | |
| <p>1. Session joint with Associazione Italiana Colore</p> <p>2. On Friday a Visit to SAES Getters R&D Centre AND an Excursion to National Science & Technology Museum in Milan will be organized</p> <p>N.B. Poster sessions and refreshments are held during breaks in each of the morning and afternoon sessions (except Wednesday afternoon)</p> | | | | |

Conference Topics

The session structure and the broadly defined session themes of LS14 are given in the accompanying table. A full program of invited speakers, each well known in their respective research fields, is in place to provide coverage of important recent advances. (*N.B. An up-to-date list of invited speakers is given on the conference website*).

Contributed papers in the following areas of lighting science and technology will be considered for presentation at the conference as either posters or as Landmark Papers and also, if accepted, inclusion in the published conference Proceedings Volume:

- Solid State Lighting (SSL) systems: LED and OLED
- Legacy lighting systems: Low- & high-pressure discharge sources
- Novel light source technologies: UV LED; laser diodes; multi-LED, innovative sources
- Drivers, ballasts, lighting controls and intelligent lighting
- Light source materials: Semiconductors; phosphors; emitters; substrates; polymer optics and films; glasses; capsules, etc.
- Lighting metrics & metrology: Light quality; color, perception, etc.
- Biological effects of light: Physiological effects; health effects; etc.
- Lighting economics & environmental impact: Life cycle cost models; Product Environmental Footprint (PEF)
- Special lighting applications: Automotive; architectural; outdoor and street, art & museum; horticultural; etc.
- Lighting Design: challenges and opportunities with new lighting technologies; lamp and luminaire design

Contributed Paper Submission

Contributed Papers must be in English and should report original work, completed or in progress, connected with the science and technology of lighting as outlined above.

A template for the preparation of papers in MS-Word format is available on the conference website (<http://www.ls14-symposium.org>). Only electronically submitted papers in pdf format will be considered for publication. Submitted papers must be accompanied by a completed copyright transfer form, a copy of which is available on the conference website along with the template.

The length of submitted Contributed Papers, including figures and references, may be 2 (min), 4 or 6 (max) pages; the even page numbers being important for the production of the printed version of the published Proceedings Volume. Papers longer than the 6 page limit will be considered if authors make a strong case for doing so.

The deadline for receipt of both Invited Papers and Contributed Papers for guaranteed inclusion in the published conference Proceedings Volume, assuming referee approval, is:

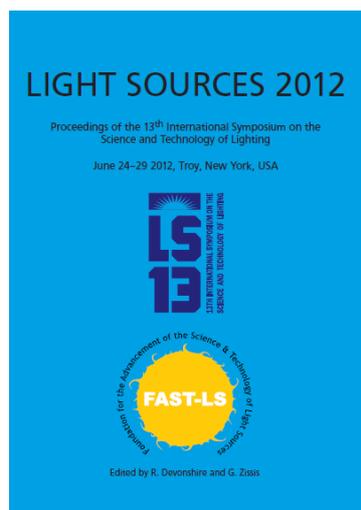
Monday, May 19th, 2014

Please note that this date is later than that necessary to take advantage of the lower early-registration fees (*April 30th, 2014; see below*) and of the special negotiated LS14 hotel rates (*end of March; see below*). The organisers wished to pass on to authors the time gained by, on this occasion, not using traditional printing methods to enable distribution of the conference proceedings on arrival at the conference.

A separate Call for papers is being issued shortly that relates specifically to the conference session being organised jointly between LS14 and the Associazione Italiana Colore. Papers submitted as a result of this present call that deal with colour related issues will also be considered for Landmark Paper presentation in this special session, i.e., submission for the session is not restricted to those submitted in the separate call for papers.

Publication

As for previous LS Symposia, a Proceedings Volume will be published by the conference sponsor organization FAST-LS which enables Invited and Contributed papers to be referenced and which will be abstracted by several of the major international scientific / engineering databasing organisations. Past proceedings volumes have proven to be valuable reference sources for people active in lighting related science and technology.



Example Proceedings Volume: LS13

Conference delegates will be given a copy of the Proceedings Volume on a USB memory stick at registration and a copy will be available via WiFi at the venue throughout the conference.

Printed copies of the LS14 Proceedings Volume can be ordered by registered delegates during the conference at a special pre-publication discount price; exact price and delivery details will be given on the conference website as soon as possible. It is hoped that printed copies ordered at registration will become available during the conference for collection, otherwise they will be posted.

Several international scientific and engineering journals have confirmed their interest in publishing Special Issues or clusters of papers that have been accepted for presentation at LS14 and which are to be included in the Proceedings Volume. Authors of these papers are invited to submit full versions of their papers to the following journals chosen because of their generally complementary topic coverage in the field of lighting related science and technology:

- Open Journal of Solid State Lighting (Springer)
- Journal of Light & Visual Environment (IEIJ)
- Transactions on Industry Applications (IEEE)

Links to the paper submission websites of each of the journals is given on the LS14 conference website. Full papers can be submitted to the journals at any time after they have been accepted by the LS14 International Scientific Committee although there is obvious advantage in firstly having the paper discussed at the conference following its presentation. Papers submitted to the journals will be refereed according to the respective established procedures.

Exhibition & Company Visit

A commercial exhibition will be held at the LS14 conference venue for companies who supply components, materials, metrology and diagnostic instrumentation, software tools, etc., to the lighting-related R&D community.

SAES Getters have kindly offered to host a visit to their R&D laboratories located in Lainate between Como and Milan on Friday, June 27th. Details of the visit and how to register interest will be given on the LS14 in due course.

Social Events & Accompanying Persons

A Welcome Reception will be held in the evening of the conference opening day Sunday, June 22nd, immediately following the two keynote lectures given in the auditorium at the Grand Hotel Como. A Get-Together Party is being organized for the Monday evening at the end of the first full day of conference sessions.

The major social events will take place during the late afternoon and evening of Wednesday, June 24th. A leisurely cruise on Lake Como will enable delegates and any accompanying persons to more fully appreciate the beautiful scenery of the sub-Alpine environment of Como lake and will be followed by a gala dinner at a special lakeside venue. All of these events are included as part of the conference fee.

The accompanying persons programme will provide guided and independent travel opportunities to explore more fully the many local and regional tourist attractions and activities, including the rich and varied arts and food cultures.

One of the conference-related special visits that is planned already is to visit the famous Museo Nazionale Della Scienza E Della Tecnologia Leonardo Da Vinci (<http://www.museoscienza.org/english/>) in Milan on Friday, June 27th. Details of booking this visit, and possible other visits to sites of artistic importance in the area, will be given on the conference website and highlighted with email alerts to registered delegates.

It is anticipated that many delegates and accompanying persons will wish to extend their visit to Italy pre- and post-conference and it is planned that the conference website will provide links to local and national tourist agencies. If demand justifies it a travel agent will be invited to attend the conference venue during refreshment and lunch breaks to assist delegates with their travel and accommodation arrangements and to offer general advice and help.

Travel & Accommodation

The city of Como is well connected to major cities in Europe, the USA and Asia. There are three international airports (Milano Malpensa, Milano Linate, Bergamo Orio al Serio – the last one not so well connected) located within 45-90 minutes driving time or, alternatively, a short train journey, from Como. Como is also very well connected by train to all of the major European Cities. Frequent and fast train services connect Como daily to Milan as well as to cities in Switzerland and Northern Europe. Travel by car is also very convenient as the "Como Nord" exit on the A9 motorway connecting Milan and cities in Switzerland is close to where the Conference Venue is located in Como.



LS Organizers achieved an agreement with Skyteam that allows conference participants to take advantage of discounts on the flight tickets; information is available on the conference website.

The LS14 Organising Secretariat have negotiated preferential room rates for LS14 delegates with several of the major hotels in Como. Como is a very popular tourist venue at all times of the year but especially during the conference period and so if delegates want to ensure that they find accommodation that is convenient for attending the conference on a daily basis then it is strongly recommended that registration for the conference and associated hotel bookings are made as early as possible. Each of the hotels has its own expiry date for the special LS14 rates but in general they expire by end of March. The organizers will be able to offer help with accommodation bookings after these special rates expire but probably these will be found only at the normal seasonal tourist rates.

LS14 Registration

Registration for LS14 is via the conference website. The different categories of registration fees for the conference are shown in the table.

| Delegate Type | Before May 1st, 2014 | From May 1st, 2014 |
|-----------------------------|---------------------------------|-------------------------------|
| Regular | 630 Euro | 750 Euro |
| Student | 400 Euro | 400 Euro |
| Workshop/Tutorials Attendee | 80 Euro | |
| Accompanying Person | 140 Euro | |

- Regular and Student registrations include: access to the conference venue and the one-day Workshops/Tutorials; Conference proceedings on USB Key; Summary Booklet; Session Refreshments; Lunches; Welcome Reception; Get-together Party; Cruise on Lake Como and Gala Dinner
- Accompanying person registrations include: Welcome Reception; Get-together Party; Cruise on Lake Como and Gala Dinner
- Registration for Workshops/Tutorials only includes access to the one day Workshops/Tutorials; Refreshments; and Lunch
- Printed versions of the Proceedings Volume will be printed on demand at a price to be announced.

Registration and Paper Submission will both be available on the conference website from Friday, January 31st, 2014.

Conference Committees

LS14 Local Organising Committee

| | |
|---------------|---|
| P. Di Trapani | University of Insubria, Como, Italy, Chair |
| A. Corazza | SAES Getters S.p.A., Italy, Co-Chair |
| P. Bertoldi | JRC Ispra, Italy |
| L. Blaso | Enea Ispra, Italy |
| C. Botta | CNR ISMAC Milano, Italy |
| S. Fumagalli | Enea Ispra, Italy |
| V. Lo Verso | Politecnico of Torino, Italy |
| F. Meinardi | Bicocca University, Milano, Italy |
| M. Meneghini | University of Padova, Italy |
| M. Rossi | Politecnico of Milano, Italy |

LS Symposia International Scientific Committee (ISC)

| | |
|----------------|--|
| R. Devonshire | University of Sheffield, UK, Chair |
| G. Zissis | University of Toulouse III, France, Secretary |
| J. Stocks | Ceravision, UK, Treasurer |
| E. Arnold | Heraeus Noblelight, Germany |
| L. Balazs | GE Lighting |
| K. Bando | Nichia Corp., Japan |
| L.R. Brock | OSRAM SYLVANIA, USA |
| T.R. Brumleve | Lighting Consultant, USA |
| A. Corazza | SAES Getters S.p.A., Italy |
| R. Geens | Havells-Sylvania Lighting, Belgium |
| M. Haverlag | Philips Lighting, Netherlands |
| M. Jinno | Ehime University, Japan |
| S. Kitsinelis | Phasma Solutions, Greece |
| G.M.W. Kroesen | Technical University of Eindhoven, Netherlands |
| J.E. Lawler | University of Wisconsin, USA |
| M.Q. Liu | Fudan University, China |
| R. Ma | Universal Display Corporation, USA |
| J. Maya | Next Light LLC, USA |
| M.S. Rea | Lighting Research Center, RPI, USA |
| C.C. Sun | National Central University, Taiwan |
| T. Yasuda | Toshiba Lighting and Technology, Japan |

Note: the ISC is always open to appointing experts in lighting science & technology who can represent topics and countries where it is currently under-represented. This applies especially to areas of strong current interest such as new SSL applications, including non-lighting applications, metrics, control systems, and the human interface. Each of the committee members would be happy to discuss with potential candidates how the ISC operates; please feel free to contact any one of them.

LS14 Sponsorship

A wide range of LS14 sponsorship opportunities for companies and organizations relating to conference events, delegate materials, etc., exists. Please see the conference website for details.

LS14 Information

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LS14 Key dates

| | |
|---|---|
| January 31st, 2014 | Opening of Registration & Contributed Paper Submission |
| March 31st, 2014 | End Period Special Conference Hotel Accommodation Rates |
| April 30th, 2014 | Last day of Reduced Rate Early Registration Period |
| May 19th, 2014 | Deadline for submission of Contributed Papers |
| June 22nd to 27th | LS14 Conference in Como |
| www.ls14-symposium.org | |