

the Laserist

A woman with short dark hair, wearing sunglasses, a purple top, and shiny silver leggings, stands in the center of the frame. She has her arms crossed and is looking towards the camera. Behind her, a large, intricate laser light display is visible, featuring a complex, web-like pattern of white and blue light beams. The background is dark, with some blurred lights and structures, suggesting an indoor event space.

IN THIS ISSUE:

LIGHTING BUILDINGS WITH LASER LIGHT
ANCIENT THAI ART MEETS LASER ART
LASERS CONNECT GERMAN TOWERS
EVENT SAFETY CONSIDERATIONS
2018 ILDA AWARD WINNERS
MEMBER DIRECTORY



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and laser controller



2 x IR emitters



-20" ILDA cable
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Ethernet adapter
-LAARIS Games One
software



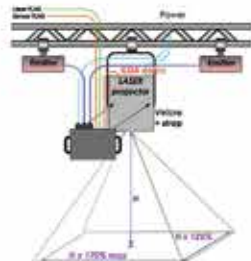
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ILDA's deepest thanks to ...

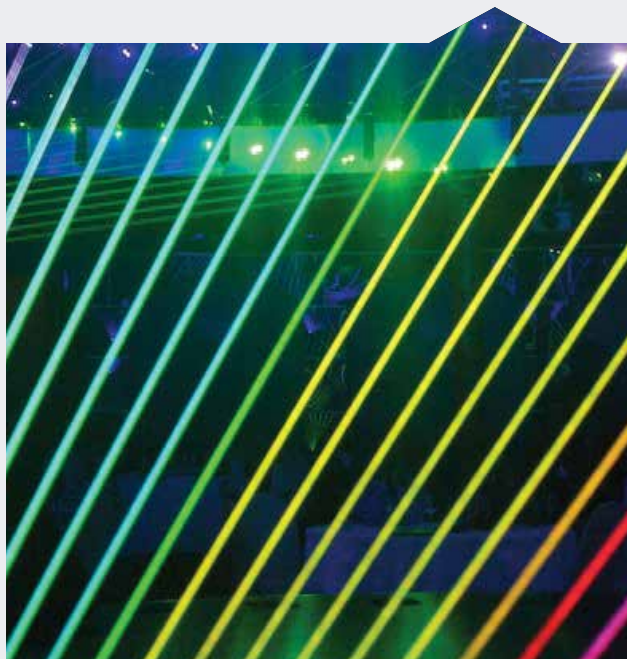
- LaserTech Canada, host of the 2018 ILDA Conference in Montréal
- LaserAnimation SOLLINGER, laser projector sponsor
- Xtaega, Skyzan laser safety software sponsor
- Christine Jenkin, Conference Committee chair
- Dirk Apitz, Matthias Frank, Richard Gonsalves, Horacio Pugliese, and Tim Walsh plus many other technical and artistic contributors
- and all of our attendees

... for a productive, fun and successful 2018 Conference!



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Cover photo: 2018 ILDA Award Laser Photography, First Place winner: "Angel" by KVANT Ltd., taken at Prolight + Sound 2017

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ILDA, founded in 1986, is the worldwide organization for companies and individuals who produce laser shows and displays, or who provide lasershow-related products and services.

Awards programs showcase excellence

The annual ILDA Awards recognizes our Members' best work in laser graphics, shows, and technology. You can see each recent year's winners at ILDA's YouTube channel. (Search for the "ildalasershow" channel; we currently have 133 videos online.)

Code of Ethics protects clients

Every ILDA Member must agree to our Code of Ethics and our Code of Business Practice. This is an important reason to work with an ILDA Member. If anyone has a problem with a Member, they can submit an ethics complaint to ILDA. We will then try to resolve the issue to everyone's satisfaction.

Upholding safe and legal laser shows

Every ILDA Member also must agree to a detailed list of basic laser safety principles. This is another important reason to work with ILDA Members who know the complex legal requirements and who create safe shows.

ILDA is an active member of safety groups, including the ANSI Z136 laser safety committee and the SAE G10-T and G10-OL laser/aviation safety committees. ILDA has helped write regulations and requirements for outdoor safe laser use.

Technical standards

ILDA helped create worldwide interchangeability of laser projectors and laser shows through a series of standards created in the 1990s and still in use today.

ILDA's Technical Committee, under the direction of Dirk Apitz, has published a new set of standards for the "ILDA Digital Network" or IDN protocol.

ILDA Annual Conference

Each year, ILDA holds a conference where laserists from all over the world can share ideas and interests. The ILDA Conference includes seminars, workshops, an informal "lase-off," and the formal ILDA Awards Banquet, as well as other activities.

The 2018 ILDA Conference in Montréal was hosted by LaserTech Canada, with projectors from LaserAnimation SOLLINGER.

Past Conference locations have included Bratislava, Baltimore, Dubai, Las Vegas, Germany, San Antonio, Moscow, Amsterdam, China, Rimini – and even two conferences aboard cruise ships!

We welcome new members

If you work with laser shows, we invite you to join ILDA. For many ILDA Members, the Awards and Conference are highlights. Others are glad to help ILDA's efforts in improving safety and professionalism by their membership support.

More information online

Please visit our comprehensive site, ILDA.com, to find out more about laser shows, safety, and how to join. We also have a site primarily for Members, ildamember.com, and the site LasershowSafety.info for anyone wanting to know regulations and safety procedures.

Membership Directory

In this issue is our Membership Directory. We have three main categories of Membership:

- Corporate (with three levels)
- Non-Profit Organizations
- Individual, Hobbyist, and Student

In addition, we have a program where companies can submit documentation about their credentials. Currently, five ILDA Members also have achieved "ILDA Accredited Professional Lasershow Company" status.



2018 ILDA AWARD WINNERS. PRESENTED NOVEMBER 12, 2018 AT THE MONTRÉAL ILDA CONFERENCE

Corporate Show

- 1st: "Alchemy of Light", Dream Laser
2nd: "Peugeot 5008", Merlin Schaad
3rd: "Penguins Stanley Cup Finals",
Lightwave International

Live TV Show

- 1st: "Dancing On Ice Final", ER Productions
2nd: "Lamix Live at P3Guld 2018", Laserimage AB
3rd: "Alan Walker Norwegian
Grammy Awards 2018", Laserimage AB

Edited Film/TV/Video

- 1st: "Eon Christmas Commercial 2017", Laserimage AB
2nd: "New Balance Fresh Foam Lazr", LaserTech Canada
3rd: "Imagine Dragons on 'Ellen'", Lightwave International

Laser Show with Added Effects/Multimedia

- 1st: "Dragons", Visual Sensation
Laser Shows & Technologies
2nd: "The Metal Corporation", Orion-Art Multimedia
3rd: "The Novatec Company", Orion-Art Multimedia

Nightclub/Disco/Music Festival Show

- 1st: "Tranceformations",
Visual Sensation Laser Shows & Technologies
2nd: "Raving Holiday", Lightwave International
3rd: "Maine Lobster Festival", Pinnacle Laser Productions

Live Stage Show

- 1st: "Prolight Sound 2017", KVANT Ltd.
2nd: "Faith Hill & Tim McGraw
'Soul 2 Soul World Tour'", ER Productions
3rd: "World's Largest Laser Display", ER Productions

Multi-Effect Laser Show

- 1st: "Trains and Brains", David Kumpula
2nd: "Showroom", KVANT Ltd.
3rd: "New Year Show 2018", Dream Laser

Graphics Show

- 1st: "The Cartoon Detective", Orion-Art Multimedia
2nd: "Xmas", Visual Sensation Laser Shows & Technologies
3rd: "Business", Dream Laser

Abstract Show

- 1st: "Feel It Still - Portugal The Man", Jason Salt
2nd: "Hot Damn", Christopher Short
3rd: "Boom Boom", Christopher Short

Beams/Atmospherics Show for a Single X-Y Scanner Pair

- 1st: "Ignite", Theo Petrides
2nd: "Calm Night", LOBO
3rd: "One Thing", LOBO

Beams/Atmospherics Show for Multiple Scanner Projectors

- 1st: "The Hunt", LOBO
2nd: "Unleashed", VisuTek e.U.
3rd: "This Is What You Came For", Nice Lasers

Innovative and Fine Art Applications

- 1st: "Lightning Strikes", Seb Lee-Delisle
2nd: "Lightning Catchers", Seb Lee-Delisle
3rd: "Glowing", David Kumpula

Permanent Installation

- 1st: "Shanghai", KVANT Ltd.
2nd: "Da Long Tower", Phantom Media Co. Ltd.
3rd: "The Home Disco", David Kumpula

Laser Photography

- 1st: "Angel", KVANT Ltd.
2nd: "Evergreen", Nice Lasers
3rd: "IMAGINE – Dubai Festival City",
Laservision Mega Media

Laser Jockey

Performed live, and judged
by attendees, at the ILDA Conference
1st: Derek Garbos, LaserTech Canada
2nd: Nick Squire, LaserTech Canada
3rd: Sally Steranko, Image Engineering

Fenning Technical Achievement Award

- 1st: "Static Laser Beam Auto-alignment
Safety System", KVANT Ltd."
2nd: "Mercury DMX-Based Laser Control System", X-Laser

Fenning IDN Standards Technical Achievement Award

- 1st: "ILDA Digital Network - Toolbox",
University of Bonn, Laser and Light Lab
2nd: "ILDA Digital Network - Switcher",
University of Bonn, Laser and Light Lab

ILDA Career Achievement Award

Glenn Thomas, 27-year laserist with Laser Images Inc.
Laserium™ planetarium-based light shows



My Fellow Laserists,

I'd like to extend a personal welcome to the Winter 2018/2019 edition of The Laserist, the official publication of the International Laser Display Association (ILDA).

I want to first address those readers who are opening The Laserist for the first time. If you are new, you've come to the right place. ILDA is a community of businesses, industry professionals, and hobbyists that volunteer their time and energy to develop new standards, work together on developing and enhancing laser safety and promoting ethical and fair business practices. For the experienced reader, The Laserist is a platform to share what you are working on with other members and other industries to highlight your work and technical developments.

In a fast-paced industry, where business is conducted on the order of months, weeks, days, or sometimes even hours, ILDA is an organization that is a long-term investment. ILDA focuses on work and industry initiatives that frequently span months or years. For all our readers, we want to know what you want to see in future editions of The Laserist that would help you grow in the industry.

The laser industry faces a unique challenge as we shift from analog to digital, as we drive to develop real-time networking solutions that address the largest industry audience. We want to facilitate the creation of stunning and intense visual experiences. As the industry grows, we need to ensure that shows are performed without sacrificing the safety of our audience members or performing artists. As an industry we must be sensitive that the public perception of lasers and laser light shows affects each and every one in the laser light show industry. We have a responsibility to both educate those new to the industry on safe shows and to uphold professional business practices, while maintaining a culture of art and fun — tasks not to be taken lightly.

Lasers have a unique characteristic that draws people toward its effects — a precision that can be seen when creatively harnessed. As laser touches other markets we can expect to see a specialization of hardware that is optimized for particular effects, deployment solution, or implementation similarly to how general-purpose computing shifts to application-specific computing; such as mobile, desktop, and datacenter environments. In parallel, we can see lasers that are, for example, optimized for installations, or optimized for touring. We can expect lasers that are designed specifically for beams or for graphics, or for lumia or maximum color gamut, or even raw optical power.

In closing, I hope The Laserist delivers something useful to you as a reader and as an organization. We value your feedback and continued participation to help us refine, improve, and grow. Keep on lasing!



Brian Gonzalez, President, ILDA

ILDA ACCREDITED PROFESSIONAL MEMBERS

In addition to being ILDA Members, these companies also are accredited in the areas of Professional Performance & Experience, Safety, Education & Development, and Volunteer Service.

ILDA PRO LEVEL 1

Sales over \$1,000,000

Lightwave

International, Inc.

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Contact: George Dodworth

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mail@lobo.de
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ILDA PRO LEVEL 2

Sales between \$250,000 and \$1,000,000

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617-308-5769
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Laser Production Network

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Laser Spectacles, Inc.

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Annual lasershow-related sales over \$1,000,000

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Annual lasershow-related sales less than \$250,000

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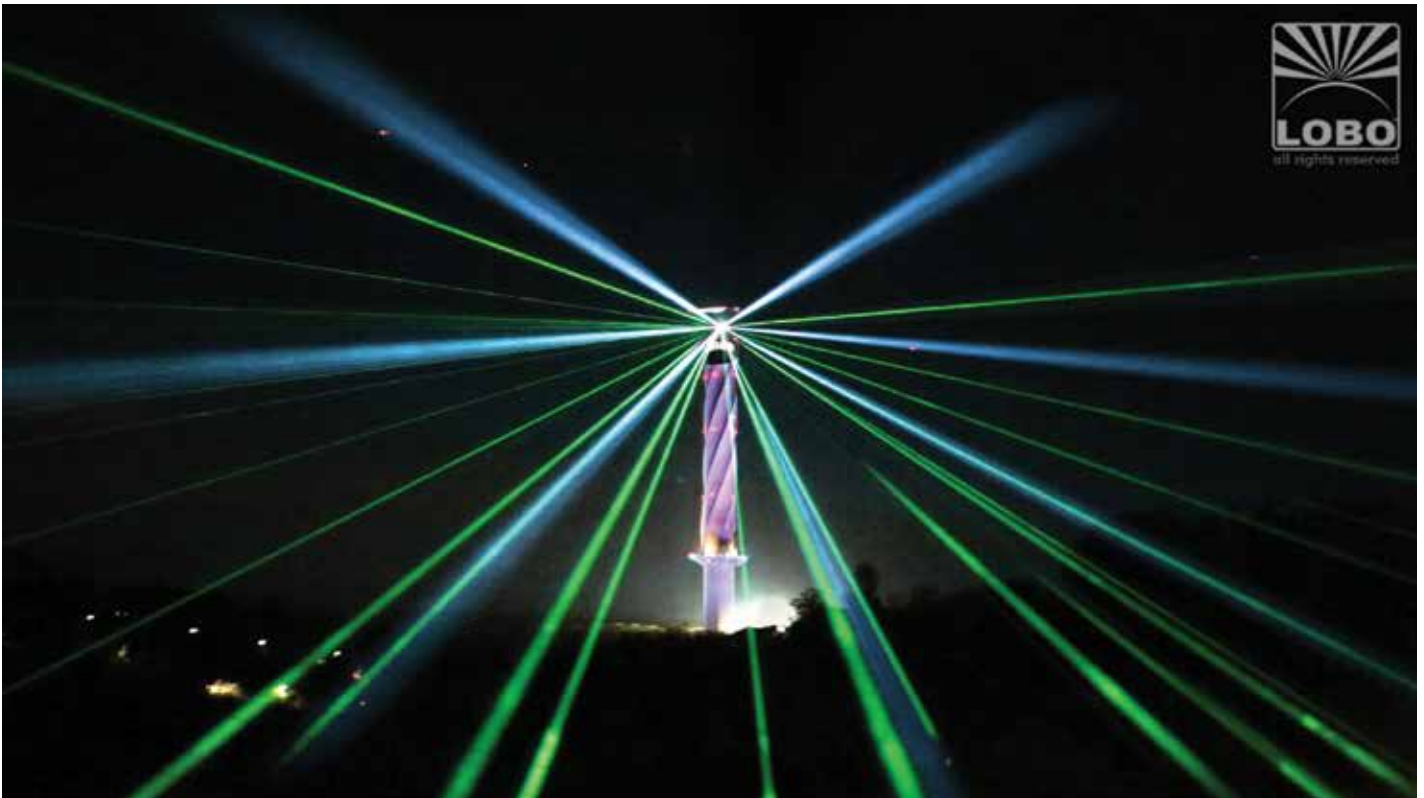
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LOBO CONNECTS OLD AND NEW TOWERS IN HISTORIC ROTTWEIL, GERMANY

ILDA Member LOBO electronic staged a spectacular laser show for the grand opening of the Thyssenkrupp Elevator Test Tower in Rottweil, which also has the tallest observation deck in Germany at 246 meters (807 feet).

A crane on the roof lifted LOBO's three-ton 10-foot shipping container to the top of the tower. Inside were six lasers optimized with tight beams for long-distance scanning, plus two LACON-5 laser control workstations — one as master and one as backup.

The tower lasers aimed at three spectator areas 1300 meters (0.8 miles) away, as well as at eight historic towers in the town of Rottweil. One tower was at a distance of 2400 meters (1.5 miles). Using LOBO's AMP-6 high-precision graphic scanner, the beam could be moved in steps as small as 40 mm (1.6 inches) over the 2400-meter distance.

Aircraft safety was a key consideration. LOBO notified aviation safety authorities as well as the local police helicopter service prior to all tests and the performance.

A third LACON system was installed at a local radio station to play the audio soundtrack. This allowed listeners to see the lasers synchronized exactly with the audio, with no time delay due to the vast distances involved.

On the day of the show, there was a festive atmosphere in Rottweil, with a Ferris wheel and a dining table of 246 meters for visitors to enjoy local delicacies. At 8:00 pm the audience areas were full and the opening ceremony show began.

Fireworks lit the tower and sky, while laser beams from the tower laid majestically over the spectators like a projecting hand in different colors. After the impressive 12-minute show, the lasers remained on for 90 minutes, statically connecting the eight historical towers with Rottweil's newest and tallest achievement. ■



Photo credit: LOBO

FAITH HILL & TIM MCGRAW



ENTERTAINMENT EVENT LASER SAFETY CONSIDERATIONS

By Roberta L. McHatton, LSO
Owner/Consultant, Laser Safety Services LLC

Photos courtesy ER Productions

Congratulations on deciding to add lasers to your next event! Laser light brings excitement, pizzazz, and class to your special event in a multitude of ways. Laser effects include “beamworks” with choreographed sweeping, dancing laser beam sequences that reach out and embrace your audience in a way that no other lighting effects can, as well as bringing neon-like animated light to your client’s logos and graphics that will make an audience gasp with delight. Lasers add magic to events and productions that viewers will long remember.

What makes laser light different from conventional light – it is monochromatic, coherent and spreads very little – also means it can deliver a great deal of energy in a very small area. Thus the need for safe use of lasers.

Light bright enough for entertainment requires Class 3B lasers of 5 milliwatts to ½ watt for smaller shows, while larger shows require Class 4 lasers of ½ watt to 30W or more. Higher-powered Class 3B and Class 4 lasers can or will cause eye injuries when viewed directly; Class 4 lasers also are hazardous to skin at close range, and can be a potential fire hazard.

Fun Fact: Fortunately for audiences, it is laser technicians working close up on a projector with the protective housing removed who are at the most risk. Audiences are protected by simple basic steps (procedures) that trained laser operators must follow.

IF YOU ARE CONSIDERING HIRING A LASER COMPANY...

For shows in the United States, ask to see the laser show company's variance. A variance is permission from the Food and Drug Administration to deviate from FDA's regulation that laser light displays be below 5 milliwatts. Once a company's variance has been approved by FDA, it becomes legal to use Class 3B and Class 4 lasers for public entertainment purposes in accordance with the conditions of the variance. The FDA can hold event promoters accountable if they hire non-varianced laser companies.

Venues: Indoor or outdoor, terminated or unterminated? Professional laser show companies will need to know about your venue.

If outdoors it is always best if lasers can be terminated on buildings with a suitable non-reflective surface, rather than shooting off into airspace. The reason is that laser light may be bright enough to cause distraction, glare, or temporary flash blindness to pilots. This is especially hazardous during critical flight phases such as landing and takeoff.

Fun Fact: Since June 2016 the Federal Aviation Administration has not required laser companies to notify terminated outdoor laser activities. This is when there is no possibility a plane or helicopter can enter the beam path. Consider issuing a simple courtesy email to FAA, especially if your location is near an airport.

For outdoor shows with unterminated beams, the laser show company is legally obliged by the FDA variance to notify FAA of the laser beam locations and characteristics. This notice should be submitted to FAA at least 30 days in advance. FAA will conduct an aeronautical study; if they object to the beam powers and locations, the show must be changed until they do not object.

If your venue is indoors then you have nothing to be concerned about, right? Well, that depends on what sort of reflective surfaces exist and where they are located. Older theaters tend to have crystal chandeliers and/or mirrored surfaces. Laser reflections can be just as dangerous as direct

beams. During show setup the Laser Safety Officer and/or laser operator will prevent dangerous reflections.

Fun Fact: It is always better to have more powerful lasers, right?

Wrong – Not only can higher power lasers offer a greater safety risk but having just a few big lasers may have limited artistic appeal. For most indoor venues, 3-5W lasers are adequate. More lasers rather than more powerful lasers will generally be more impressive to your audience. Think about it this way: Multiple lasers can provide multiple beam sources rather than just the few V-shaped beam patterns you'd get from a few high-powered lasers.

Fun Fact: Using theatrical fog with beam cones, planes, waves and other shapes produces swirling clouds of color over your audience that add a dreamy effect to your production. If outdoors, using theatrical smoke can be challenging if it is windy but it is so worth it!



OUTDOOR TERMINATED BEAMS



But a word of caution for indoor shows – be sure to consult with building maintenance to see how sensitive the fire and smoke alarms can be.

Keeping beams away from people: Laser beams are required to be at least 3 meters above any surface where the audience is allowed to stand. Think about raked audiences such as in arenas and balconies. The laser company may consider terminating beams on a balcony façade as long as security measures are taken to ensure the audience cannot access beam path.

For lateral access, laser beams must be at least 2.5 meters from where the audience is allowed to be. For example, if lasers are mounted on a balcony, audience members must be unable to reach over and touch the beams.



For performers, artists and crew there can be special procedures allowing them to be closer to beams. But these require careful planning and, in many cases, special equipment and techniques. All persons who could access a laser beam must be informed of the hazards and warned to avoid lasers at all times.

Fun Fact: Do you know when the greatest risk for unwanted exposure is? Did you guess during show time?

Wrong – it is during setup and alignment. That's when everyone is racing against the clock, each crew member and performer dedicated to their assigned tasks. It is easy to know where the audience is during the performance – but it is not so easy to know where staff is during setup. Even an experienced operator may not realize a drum kit was moved after setup, or may not see an usher who forgot that she was not supposed to enter the balcony during alignment.



One-off events are at more risk than repeated performances at the same venue. Different venues can offer some very different challenges – try going from a basic stadium to an old crystal ballroom theater with lots of shiny surfaces.



Safety depends on the operator/technicians. Laser operators working in entertainment should be trained in laser safety, be technically competent, and be responsible and professional human beings. For safety and legality, operators must be able and willing to react quickly should potentially hazardous conditions occur.

Don't hesitate to ask your chosen laser company about what sort of training they provide for their employees. Ask for documented proof such as a Laser Safety Officer certificate for the show designer. While the equipment operator may or may not have an LSO certificate, they should have laser safety training and knowledge commensurate with their responsibilities.

It is always a good idea ask for references from previous clients and to ask to see insurance certificates.

EXAMPLES OF CONTROL MEASURES

Engineering control measures on the laser projector include the protective housing, proper labels, an emission indicator light, remote interlock, key switch and/or computer coded access and manual reset. In the United States, laser projectors must be certified to FDA, via a reporting form describing these and other features. Ask your laser company to show you the certification labels for their lasers.

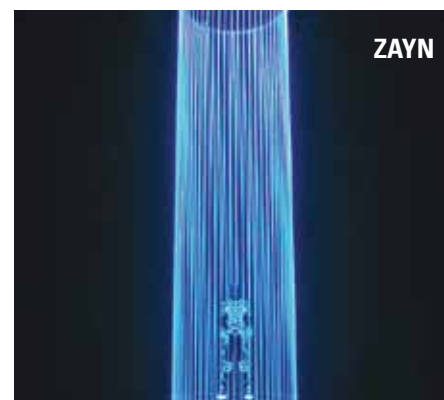
Procedural control measures are actions taken by the LSO and operator to mitigate risks. Examples of procedural control measures are announcing to crew when zoning is about to begin, assigning crew to assist in watching beam path during alignment, knowing where E-stop buttons are, educating the crew on laser hazards, and completing an FDA-required safety checklist to verify items such as secure laser mounting and use of masks to prevent beams from hitting unwanted areas.

Fun Fact: Is it ever OK to project lasers into audiences? Yes, this effect can be done – but in the U.S. a laser company **MUST** have a variance which specifically allows audience scanning.

This will list certain precautions and measures to ensure this effect is done safely. If the laser company cannot produce an audience scanning variance – which must be renewed every 2-3 years – then they cannot legally provide this effect. Know that audience scanning variances do not qualify for auto-renewal.

For variances over two years old, the laser company should have copies of their FDA annual reports, which serve to renew the variance each year.

Fun Fact: Lasers are so awesome they should be on all the time and at the same time with other stage lighting, right? Wrong – lasers used well are often limited



to the peak moment of a show or event (rather like pyro). The beams look best if not competing with other stage lighting. A good lighting designer will want to work closely with a laser show designer to get the most dramatic effect and value.

EXPECT THE UNEXPECTED

As anyone who works in entertainment knows – *expect the unexpected!* Be aware that trusses may shift, audiences may become unruly, effects like mylar confetti or descending ribbon artists may appear in the beams without warning, etc. If multiple sets of lasers are in use, the laser operator may want to have multiple E-stops; if one set of lasers needs to be shuttered, the other ones can continue.

The operator is legally and morally responsible to immediately shut off any laser beams that may be potentially unsafe. As a producer, you must understand that safety and legality come first. To help mitigate this, make sure everyone does their job properly and ensure there are no surprises.

A final thought about safety and entertainment... One of the biggest challenges when producing entertainment is to provide a fun party-like event for your audience and to keep it safe. Once the curtain goes down, there is nothing like basking in the radiant smiles of a joyful audience that has just experienced the most exciting and memorable event of a lifetime. ■



2018 LASER PHOTOGRAPHY AWARD WINNERS

These are some of the entries in the 2018 ILDA Awards "Laser Photography" category. This year, there were 28 entries from 13 different ILDA Members. The winners were chosen by ILDA Members who viewed the entries online, then voted for first, second, and third places. First place went to the cover photo, "Angel" by KVANT Ltd.



SECOND PLACE WINNER

Evergreen

Submitted by ILDA Member Nice Lasers

Photographer credit: Jesse Perez | Laser Designer: Anthony Garcia



THIRD PLACE WINNER

IMAGINE - Dubai Festival City

Submitted by ILDA Member Laservision Mega Media

A long-term exposure image late into the wee hours of the morning during a video shoot of IMAGINE-Dubai Festival City. The stillness of the water and the moonlight allowed us to see the form of the water assets and captured a moment in time. The green hue from the lasers in the finale scene.

Photographer credit: Matthew Tuey, Marketing Manager | Laser Artist: Daniel McCloskey



AWARD ENTRANT

Full Ice

Submitted by ILDA Member
LaserTech Canada

Six high-powered lasers were used to fill the ice. All the weaving red, blue and white outlines are laser-only. The solid circles between the weaves are done with video projection. This is no time-exposure — the actual image was solid and flicker-free.

Photographer credit:
Sylvain Mercier Photography



AWARD ENTRANT

Date Night 2017

Submitted by ILDA Member Derek Abbott

This photo was taken of a couple enjoying a night out together underneath an immersive-like abstract laser show.

Photographer credit:

Derek Abbott

Programmer: Derek Abbott

AWARD ENTRANT

The Gift of Light

Submitted by ILDA Member X-Laser

One of my favorite things to do in the downtime around the holidays is to play with lasers. For the Christmas holiday I decided to combine my passion for lasers with a present for a fun photo.

Photographer credit: Adam Raugh

Laser design: Adam Raugh



AWARD ENTRANT

Future Professions

Submitted by ILDA Member Derek Abbott

A laser technician aligning projectors via his wireless tablet, during an installation in Beverly Hills, CA.

Photographer credit: Derek Abbott

Laser Technician: Jesse Parker



AWARD ENTRANT

Corporate Lumia

Submitted by ILDA Member Pinnacle Laser Productions

This photo shows two laser lumia systems washing a ceiling for a fundraising gala at a historical museum.

Photographer credit: Andrew Dranetz

Programmer: Andrew Dranetz

TRADITIONAL THAI SHADOW ART MEETS MODERN LASER LIGHT

By Mike Gould



Visitors to *Lasing Nang Talung* at the Olbrich Botanical Gardens control the laser lumia imagery via hand-waving over Theremin controllers. Photo by Mike Gould

Lasing Nang Talung is a laser lumia-based kinetic Neo Op-Art installation installed in the Thai Pavilion of the Olbrich Botanical Gardens in Madison, Wisconsin. Part of the annual juried *GLEAM, Art in A New Light* art exhibition, this piece was on display August 29 – October 27, 2018.

Created by laser artist Mike Gould, the piece consists of nine lumia projectors backlighting a screen stretched around a thirteen-foot high aluminum framework. Thai shadow puppets spin and rotate within the projection space, casting moving images upon the screen. The assembly fits within the Thai pavilion in a lush garden setting.

There were major design constraints: the piece had to run for two months, surviving Wisconsin fall weather; it had to be able to be turned on and off with a timer; and it had to fit into the pavilion. Plus, everything had to be laser safe. The enclosure must be light tight with no direct laser light allowed to spill outside. The framework has a sturdy canvas back to prevent entry into the space, the entire area is roped off to prevent access closer than six feet, and the exhibit is monitored by two attendants during the run of the show.

Three Lumiator lumia projectors illuminate the front and each of the two sides of the piece, one each of red, green and blue. Powers are 700 mW of red at 638 nm, 500 mW of green at 520 nm and 1000 mW

of blue at 445nm. To achieve a wide spread at such a short throw (~9'), the Lumiators are fitted with diverging lenses, bought surplus and originally intended for TOW anti-tank missile nose cones.

The brightness of the lasers and the speed of the lumia motors are controlled by custom-built proximity sensors ("Proxen") built into a console placed in front of the pavilion. They sense hands waved overhead, similar to the way a theremin works. Three Arduinos in the console talk to three Arduinos in the enclosure, via an eight-channel audio snake.

According to Gould's Artist Statement, "The intent is to provide a meeting ground between art and science, past and future, and tradition and technology. This art piece is intended to be a mashup of traditional Thai shadow puppetry and futuristic kinetic laser Neo-Op art. Traditional Nang Talung involves small puppets providing shadow images on a rear-projection screen. The usual light source is from a fire or spotlight; here, we replace the traditional light with laser lumia."

Once this run is over, Gould hopes to re-assemble this piece in other venues such as science museums, art galleries and light-based art exhibits and festivals.

Illuminatus Lasers Flying Squad: It takes a village, and the following villagers assisted Mike Gould to make this a reality: fellow ILDA member Wayne Gillis, Zita Gillis, Steve Rich, Tom Bray, and Krunal Desai. Draco and Bradley Cross also assisted. For more information: mikegouldlaserartist.com/lasing_Nang_Talung.html ■



The Thai pavilion, showing the rack-mounted controller, Lumiators and Nang Talung puppets. Photo by Mike Gould

Mike Gould is a three-time ILDA Award-winning laser artist from Michigan who builds laser light installations for art galleries, museums, and art events. He also directs the Illuminatus Lasers Light Show. <http://illuminatuslasers.com>



LIGHTING BUILDINGS WITH LASER LIGHT

Tim Walsh, president of Laser Spectacles, Inc., has a new passion - projecting laser light on buildings.

"I found myself in 2017 working with several venues that featured spectacular buildings in their own right, Projecting lasers directly upon the buildings solved the immediate problem of how to make each client's event more special, and challenged me to make the most of each different building. While I had been dabbling in 'laser mapping' over the years, creating these shows in particular facilitated my coming up with new techniques to combine multiple projectors into a cohesive large scale projection."



The first building that Walsh lit up with lasers was the Ramona Theatre in Frederick, Oklahoma. "The Frederick Arts and Humanities Council was planning a 'dinner in the street,' and wanted some high-tech entertainment after dinner," Walsh said. "I was not sure how this was going to proceed until I visited Frederick and set eyes upon the Ramona Theatre. Then everything became clear - I would create a laser mapping show set to my original music specifically for the theater facade."

"I ran the laser mapping show after dinner was finished and it was good and dark. And after the show, the audience went into the theater itself and saw a full-scale indoor laser show inside the theater. It was a night of pure lasers!"

The second building that Walsh undertook was the Nebraska State Capitol in Lincoln. (The annual ILDA Conference was held twice in Lincoln, in 1994 and 1997, hosted by Jack Dunn of the Mueller Planetarium.)

Walsh explains, "The First Lady of Nebraska called while I was working on the Ramona Theatre show, looking for proposals for the Final Party of the Nebraska State Sesquicentennial, to be held in front of the Nebraska State Capitol Building. As I looked over photographs of the building, I realized that this was an opportunity to work with a stunning 400-foot tall building!"

"I shared with the First Lady and her committee the work that I was doing for the Ramona Theatre. They agreed that this was the direction that they wanted to take the final party — a laser show featuring their iconic State Capitol Building. We not only laser-mapped the building; we also produced a full laser beam show down Centennial Mall over the audience. Many thanks go to George Dodworth of Lightwave International, who introduced the concept of laser as a possibility to the First Lady of Nebraska."

The third, and perhaps most unusual building that received Walsh's laser treatment was

the North Richland Hills City Hall in Texas. The building was less than a year old, and had been designed with amphitheater style seating around it. The city was holding an annual fall concert at the building, and decided to add lasers to the concert.

"This was a building in the round, a very contemporary and striking building. I went to the site check thinking that I was going to figure out how to hang a screen, but I soon became entranced by the building itself. The architecture was well suited for setting up multiple projection zones and using a variety laser mapping techniques. This show was actually performed live along with a live band playing music by the Beatles," said Walsh.

Applying laser light directly to the building and staying true to the architecture of the building is fun for everyone, not just the laser artist: "I really get a kick out of seeing and hearing the audience reaction as they see a building that they might have known for years in a new light — laser light!" ■



SELEM — A LASER ENTHUSIASTS' PARADISE

Brad Billet, ILDA Board Member



Inevitably, in any budding laser enthusiasts' career, a suggestion may be made to explore the online forum Photonlexicon.com. Often within a few introductory posts, the new person is urged to consider attending a unique event called SELEM.

The brainchild of ILDA member Adam Burns back in February 2006, SELEM (pronounced Sah-leem) is the South Eastern Laser Enthusiasts Meet which takes place every August in the town of Newton, North Carolina. From its humble two-day beginnings with about 10 people, to now being nearly a full week and the largest gathering of laser enthusiasts in the U.S., SELEM is truly the Mecca for anyone with an interest in lasers. In an effort to provide something of value to all interests of lasers, it now encompasses three venues: a 500-seat auditorium plus classrooms, a large school cafeteria, and a gymnasium.

While it began life as a hobbyist event and a chance to associate real faces with people formerly only known by screen names, SELEM is also regularly attended by various industry professionals. It has drawn people from as far as the Netherlands. The ILDA Laser Safety Officer class has been taught there for a number of years, and many people who passed the ILDA class have come from SELEM.

While manufacturers are welcome and regularly attend, it is not a trade show or sales show. They're welcome to talk about or show new technology as Pangolin has done every year but, it's more about having an opportunity to enjoy the lasers.

The Newton-Conover Auditorium is the focal point for choreographed material. Graphic, abstract and beam shows run constantly from mid-day Wednesday until the wee hours of Sunday.



New this past year was the addition of “Abstract Friday” where both new digital consoles, as well as old-school analog consoles have been employed for live performance of abstracts. The auditorium also features a mix of ion and solid state lasers.

The gallery is often used for more specialized presentations of what people are working on with lasers such as synthesizers, holography, and more recently, UV laser reactive glow-in-the-dark abstracts.

The auditorium also houses a buy/sell trade area as well as the ion lasers work room. There are often a large number of ions being tinkered on throughout the week.

The cafeteria serves as the hub of hobbyist activities both laser-related and otherwise. As we tend to dabble in interesting pursuits besides lasers you may very well find musical Tesla coils, LED wall programming, Sterling engines, manufacturing liquid nitrogen for making ice cream, 3-D printing, RC cars, helicopters and quadcopters. (We have both indoor and outdoor racing quad tracks.) There's also an area for people to show-and-tell their various experimental laser projector builds.

The gymnasium serves as the world-class display known as “ClubSELEM” with multiple trusses filled with dozens of projectors and beam rails, some up to 30 watts. Several control stations allow people the opportunity to try their hand playing a wall of projectors and accompanying live DJ's into the wee hours of the morning. There is also non-coherent intelligent lighting moving heads, LED video walls, and control stations for people to learn more about DMX/Artnet.



There is a daily schedule of activities and presentations and shows content going on in all areas that's finalized prior to the event so people can plan their day accordingly. There are talks and educational components going on in the afternoons on Wednesday through Saturday.

One of the best parts of SELEM is the people of the town of Newton itself, many of whom we have interacted with for years and who always enjoy having the opportunity to come out and see what new things we've been up to in the previous year. It's not uncommon to see the local police stopping by to relax in a bean bag chair in ClubSELEM and enjoy the show. Between DJ's one evening an officer yelled the best line ever, “I'm taking someone to jail if you don't start another laser show!”

If you have any interest in lasers at all, you owe it to yourself to throw caution to the wind and come experience SELEM. As I often tell new people, there are certain life milestones that tend to stay with you forever. Things like your wedding day, the birth of your first child, and your first SELEM. It's up to you to rank the order! ■

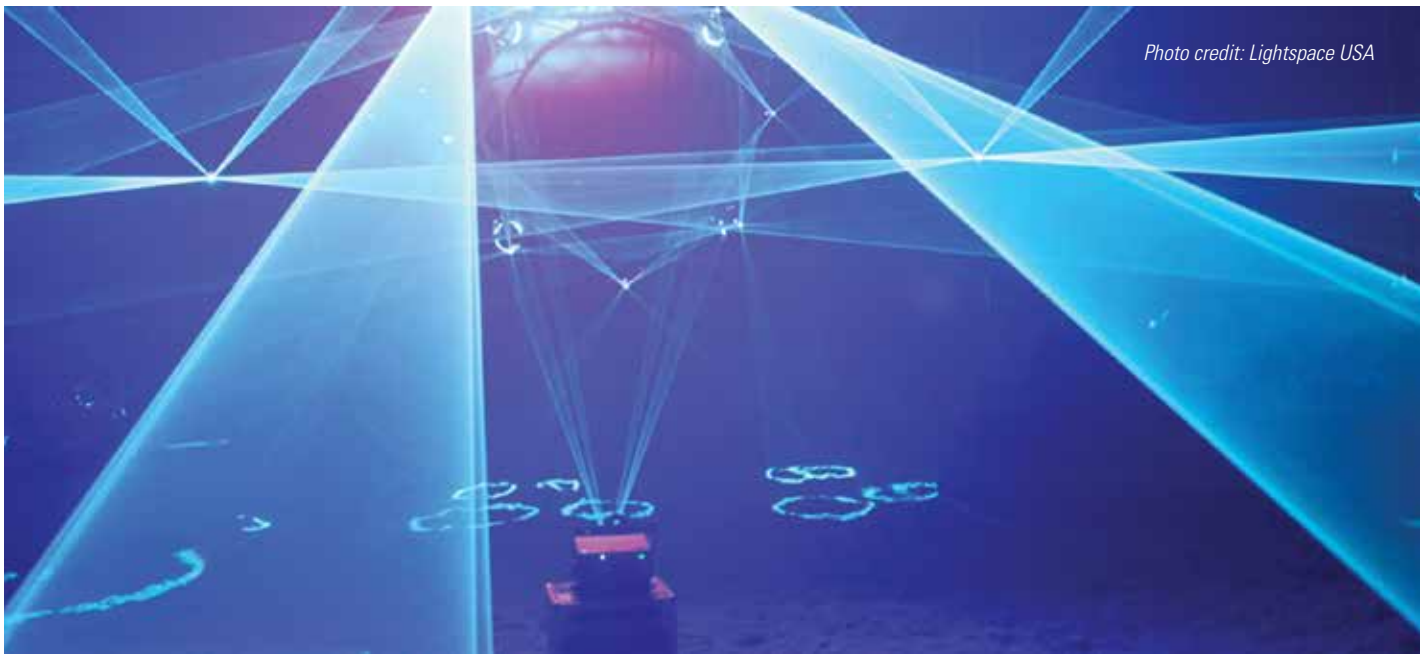


Photo credit: Lightspace USA

CHANGES IN THE LASER PROJECTOR MARKET

Walt Meador, *Lightspace USA, ILDA Founding Member*

Ch-ch-ch-changes (Turn and face the strange)

And so the David Bowie song goes. For those of us who have followed the laser entertainment industry since well before the 1986 founding of ILDA, changes are coming faster and faster. To stay successful, laserists must try and ride the tsunami wave of laser projector changes.

Just taking a look at the last five years, here are some of the laser projector changes I have observed that manufacturers have provided for the market. These changes have made laser projector investments good for the industry, but challenging in terms of inventory at the same time. As of the fall of 2018...

1 Laser projectors are lighter and provide more power in a smaller footprint than projectors manufactured five years ago. This smaller footprint can mean significant dollar savings in transportation costs if your systems are coast-to-coast travelers. And, hanging and handling lighter, more powerful projectors make the fixtures more attractive to a broader market.

2 Laser projectors are almost standard with built-in controllers. With Pangolin FB4 leading the way, projectors with a built-in controller are common place, which provides a challenge for companies that had invested in controllers that previously required ILDA cabling, sometimes at long runs, as opposed to the current inexpensive Cat5 cable.

3 Linear arrays or "bars" of lasers are now common. In various configurations these beam arrays have come to the market proving they give an excellent new look and are in widespread demand, but they also create challenges in terms of projector investments

4 Some laser projectors are equipped for audience scanning. The ILDA Fenning Award for Technical Achievement given in 2007 to Pangolin Laser Systems was a benchmark in the evolution of our industry. I am merely an observer of audience scanning, but this is a change that has a lot of people excited.

5 Many laser projectors now have faster scanning capability. Manufacturers have improved scanning speeds over the past five years. This trend is true in reliability, and longer lifetimes with fewer failures. Again, I believe Pangolin has led the way in reaching higher scan speeds. Other manufacturers have followed suit. For companies with a variety of older projectors in their inventory, this creates a creative challenge in show control.

6 Laser projectors are seeing lower prices per optical watt. For those manufacturers using solid state diode modules, there has been a definite trend in lower pricing. Manufacturing of standard models in volume has afforded manufacturers the ability to purchase materials in mass quantity, with higher yields in the manufacturing process, as well as efficiency in the whole vertical chain of projector parts for assembly. This reduced pricing has created a very competitive environment between professional manufacturers. ■

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