



Liberation
of Light
ON TOUR

Liberation of Light

How LEDs
will change
the World

yksi

concept and exhibition design - Yksi Design

Liberation of Light

Cold, uninviting light, those LEDs. Very pricey, downright expensive even. They don't live up to the promises on the packaging! They're less efficient, with a lower light output and they break faster than you expect.

LEDs (light emitting diodes) are subject to a lot of criticism. Granted, some of it is warranted. Shop shelves are bursting with far inferior products, while new light sources have yet to reach full maturity.

The arguments are understandable. Basically, consumers think and act with the short-term in mind, and of course money-matters play an important part in considerations. But while there is a lot of focus on the color, price, consumption and lifespan of LEDs, far less attention is paid to the far-reaching consequences - and possibilities - of the switch to these new light sources.

This is a mistake. LEDs are so much more than just smaller and more sustainable lamps. To begin with LEDs and OLEDs (organic light emitting diodes) mean light is now making the transition from analog to digital. This transition began with text, from the humble typewriter to the computer. Sound skipped over from tape to disc and the image leapt from celluloid to HD. Even how we read time went from a clock face, to a digital

display. These transitions had huge consequences for society as a whole. New products and processes, occupations and companies were introduced. We went from an industrial society to an information and knowledge economy - a transformation that is still continuing. Now it's time for light to take the spotlight, and its digitization will bring about changes just as sweeping. In turn it will yield another rash of innovative products, processes, occupations and companies. Light objects will take on different shapes, materials, and far more functions than are common now, as well as previously unknown applications of artificial light. Using computers we will be able to control all aspects of artificial light: operation, location, time, wavelength, intensity and color. And we will be able to add other functions to light, and vice versa.

The introduction of the light bulb around 1880 was a virtual revolution. It didn't go smoothly. Even back then, critics said only the rich would be able to afford this expensive invention. The dispersal of the lightbulb was excruciatingly slow, taking almost 25 years for the electric light bulb to permanently snuff gas light. Take into consideration other technological advancements - personal computers, compact discs, the Internet, digital cameras. The introduction of an innovation

sparks debate, every single time, especially when it comes to quality and price, while the short-term effects are usually overestimated, thanks to media hype. The long-term effects are underestimated, mind you.

With this exhibition we want to show that light has been liberated from the bounds of its casing - once and for all. We dare consumers, producers, researchers and designers to seize these new opportunities. To borrow the words of artist Daan Roosegaarde, we put forward this challenge not to unleash a new technological revolution, but to unleash a social one.

Light Liberation Front



Emile Aarts
(Philips and TU/e)

LEDs are going to change the World



Killix | Pakwing Man, Jasper Pieterse

“You can call it a revolution.” So says Emile Aarts, vice-president and scientific programme director of Philips Research and professor at the Faculty of Industrial Design at the Technical University of Eindhoven (TU/e). “Light, which was once trapped in a bulb, has in a sense been liberated.”

From light bulb to halogen lamp, to striplight, to low-energy bulb. Every innovation was a small step that brought incremental improvement. More light, less energy consumption, or both. But the advent of LEDs and OLEDs are a ‘disruption’ according to Aarts: a major leap.

Digitizing

The efficiency of these new light sources is much higher and heat loss is much lower, so energy consumption is lower too. They also last longer. But LEDs are much more than smaller and more durable light bulbs, stresses Aarts. “LEDs are electronics. This actually means digitizing light, which opens a lot of new possibilities.”

Designers can make light objects with different shapes, materials and functions beyond what has been possible or commonly done before. OLEDs add additional possibilities. Indoor and outdoor spaces will be lit in entirely different ways if illuminating foils become commonplace. Daylight and artificial light will be more alike and merge more frequently. The use and operation of artificial light will change, potentially fundamentally. Aarts takes it one step further. “The most exciting

thing to me is that we can integrate functions. We can align light better with the requirement, cut it to size or make it interactive. You can even send information via light, or add intelligence. These developments will lead to the sort that can be compared to what we’ve seen in the field of multimedia in recent decades.”

Lighting solutions

According to Aarts, we can look forward to all kinds of new applications in the near future, which will have a huge impact on the light and lighting industries. “We will move from lamps to lighting solutions. In the long term it will be less about the ‘boxes’ or the hardware, and much more about functionality. Look at the semi-conductor industry. It started out with chips and computers. But now we have iPads which are lifestyle objects. Cell phones are practically free. We have a lot of new, major companies like Microsoft, Google and eBay that make their money providing services.”

Just as multimedia have transformed the world, so too will digital light sources leave their mark. That’s Aarts’ conviction. “LEDs are going to change the world. Light will determine atmospheres more emphatically, both indoors and outdoors. Security with regards to outdoor lighting is already an important theme. And light will be used more in fields like health and wellbeing.” He refers to existing possibilities of using light to treat depression or facilitating how we wake up. He points to current

research by Philips and the University of Twente on the influence of light and lighting on the concentration and learning performance of primary school children.

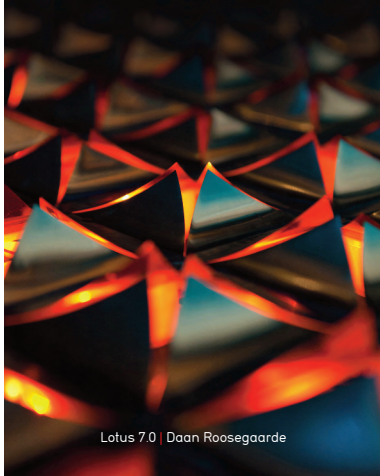
Retrofit products

As with all changes there’s some resistance, but Aarts expects that products which the industry calls ‘retrofit’ will ease the consumer into choosing LED. For instance, LEDs will come in the shape of the light bulbs and spotlights we all know and love. “You can’t just start doing away with existing infrastructure; there are simply too many standard sockets in the world.” He thinks we should imagine a ‘short, sharp transitional period of about five years.’

While LEDs and OLEDs and related lighting technologies will develop further technically, and the possibilities will widen even more, research efforts will spike to match. For instance at the TU/e recently the Intelligent Lighting Institute was set up in cooperation with various faculties and several companies. “There are new possibilities and challenges in all kinds of fields relating to light - functionally, emotionally, biologically, socially, culturally and regarding control and durability,” says Aarts.

Daan Roosegaarde
Tech-artist

Let's build the interactive landscape of the future sustainable world together



Lotus 7.0 | Daan Roosegaarde

"We are reaching a stage of co-control. The next revolution, however, should not be a technological one, but a social one. Let's build the interactive landscape of the future sustainable world together, as an extension of the collective human skin." This is the opinion of technology artist Daan Roosegaarde, participating artist of the Liberation of Light exhibition.

Daan Roosegaarde studied in the Netherlands, firstly at the Academy of Fine Arts AKI in Enschede and received a masters degree from the Berlage Institute for post-graduate architecture in Rotterdam. Currently he leads a team of ten designers and engineers as a creative director at Studio Roosegaarde in Waddinxveen, near Gouda.

Techno-poetry

By designing interactive landscapes that instinctively respond to sound and movement, Roosegaarde explores the dawn of a new nature that is evolving from technological innovation. With his 'techno-poetry' he explores the dynamic relationship between space, people, and e-culture. Using this interaction, his sculptures create a situation of 'tactile high-tech' where visitor and (public) space become one.

For example Dune, presented at Liberation of Light, is an interactive landscape which responds to people's behavior. This hybrid of nature and technology consists of microphones, sensors, speakers, software and large patches of fibre which light up according to the

sounds and motion of people passing by. A 60 meter long version of Dune can be seen and experienced on the banks of the Maas river in Rotterdam. His works have been exhibited internationally in many places, including Tate Modern and Victoria & Albert Museum in London, National Art Center Tokyo, Venice Biennale as well as in public spaces in Hong Kong.

Fluid architecture

Studio Roosegaarde developed Intimacy, a high-tech garment that becomes almost transparent based on social interactions. Another recent work, Lotus 7.0, is a living wall made out of smart heat-sensitive foil which folds open in response to people. As Daan Roosegaarde describes it: "Lotus is generating transparent voids between private and public. Here physical walls become immaterial, through a poetic morphing of space and people." For him Lotus is a step towards 'real fluid architecture'. "Stairways, doors and traffic lights will be able to anticipate our movements. I hope that within five years my studio creatives and I can make a building that just opens when you want to go in. Dancers will be the first ones to use it."

Roosegaarde believes in the positive options of technology. "For many years we thought about and talked about the danger of technology being in charge. But the fear of robots taking control is an outdated idea from eighties science-fiction movies. With computers and other technology improving and expan -

ding we are finally reaching a stage of co-control. However, we shouldn't leave the future to the nerds, but create that interactive landscape together."



Intimacy | Daan Roosegaarde

No switches

Lighting devices will be more interactive and intuitive, more adaptive and associative.



(De)light: liquid light | Cristina Ferraz Rigo (top)
Ecco Luce | Jonas Samson (left)
Scoop | Philip Ross / Aesthetic Interactions (right)



Solar Lampion | Damien O'Sullivan Design

Sustainability

LEDs use less energy and have a life-time which lasts much longer than that of traditional light sources. LED also offers new options: 'LED illumination in a specific spectrum can be used for growing crops. That will save a lot of energy and water.'

PlantLab, Den Bosch, the Netherlands



Plantparadise | PlantLab

Safety

'Lighting of public spaces should adapt to different wishes and needs. LEDs offer new possibilities for this.'

Ellen de Vries, lighting designer The Lux Lab



Poetry

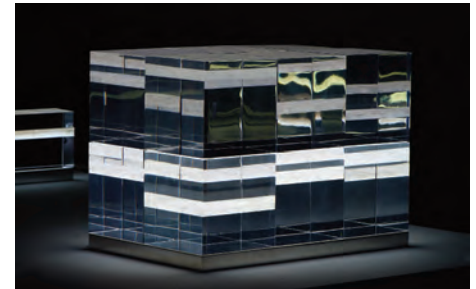
'There can be no transforming of darkness into light, and of apathy into movement, without emotion.'

Carl Gustav Jung

Fragile Future 3 | Lonneke Gordijn & Ralph Nauta / Studio Drift
[photo: Patrick Meis]



Lucid Dream | Eric Klarenbeek



Cubicles | Jacob Alkema [photo: Patrick Meis]



LED's (make love) | Arnout Visser



New materials

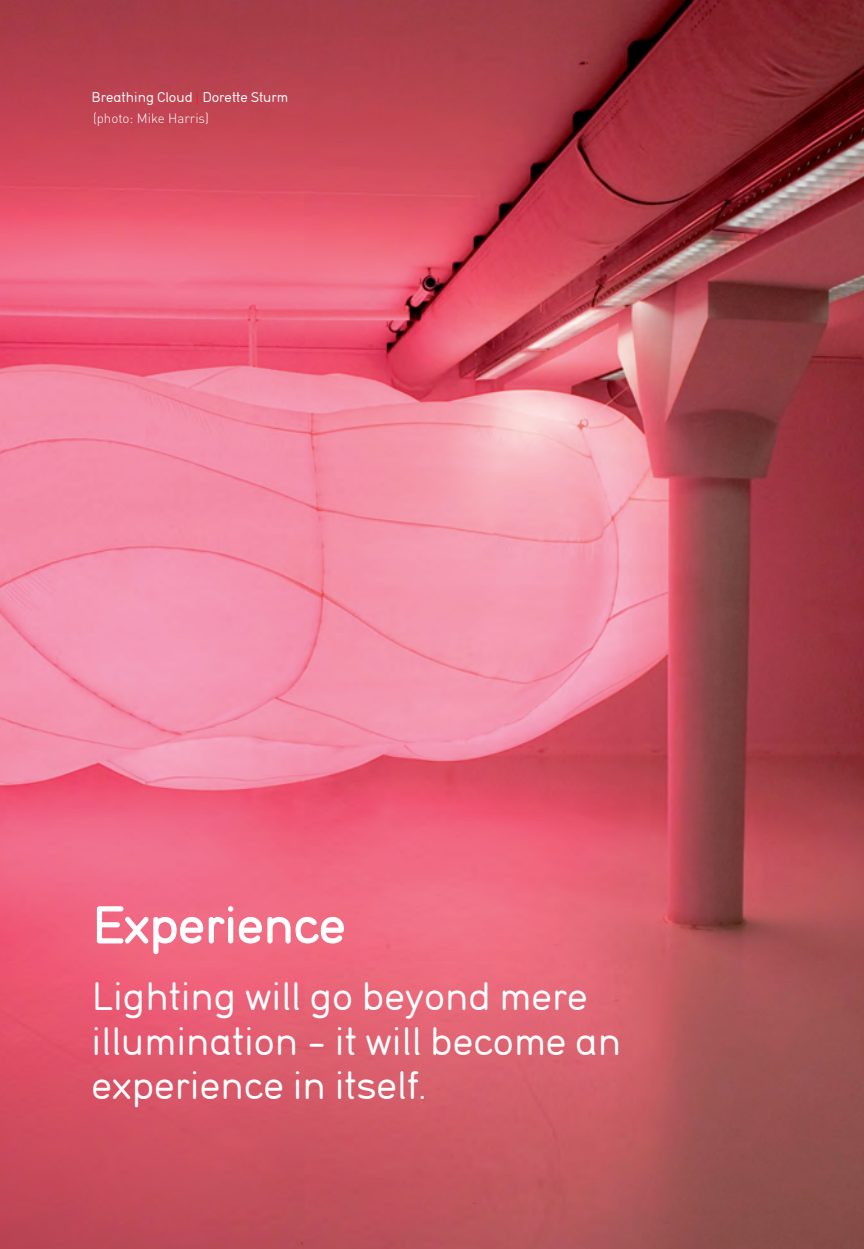
LEDs and OLEDs can be embedded into surfaces, and because of low heat emission levels, designers can use all kinds of new materials for lighting objects and systems.



Flexible OLED lighting | Holst Centre

Flat lamps | Tom Dixon for Philips Lumiblade

Breathing Cloud Dorette Sturm
(photo: Mike Harris)



Experience

Lighting will go beyond mere illumination – it will become an experience in itself.



LED wing | Denovo Design

Wellbeing

'PLACE-it makes light flat and flexible. Leading companies and institutes in lighting and flexible electronics, including Philips, Holst Centre/TNO, imec, Freudenberg, TU Berlin have joined forces to co-develop the route to integrate light into people's surroundings. This ranges from ceilings, walls, floors, furniture, to soft furnishings, and even garments. The ultimate aim of this PLACE-it (Platform for Large Area Comformable Electronics by InTegration) initiative is to realize an industrial platform for thin, lightweight and flexible opto-electronic systems that will not only open new dimensions in product design, but will also create unique opportunities for on-body applications in healthcare and wellness.'

Press release PLACE-it, March 2010



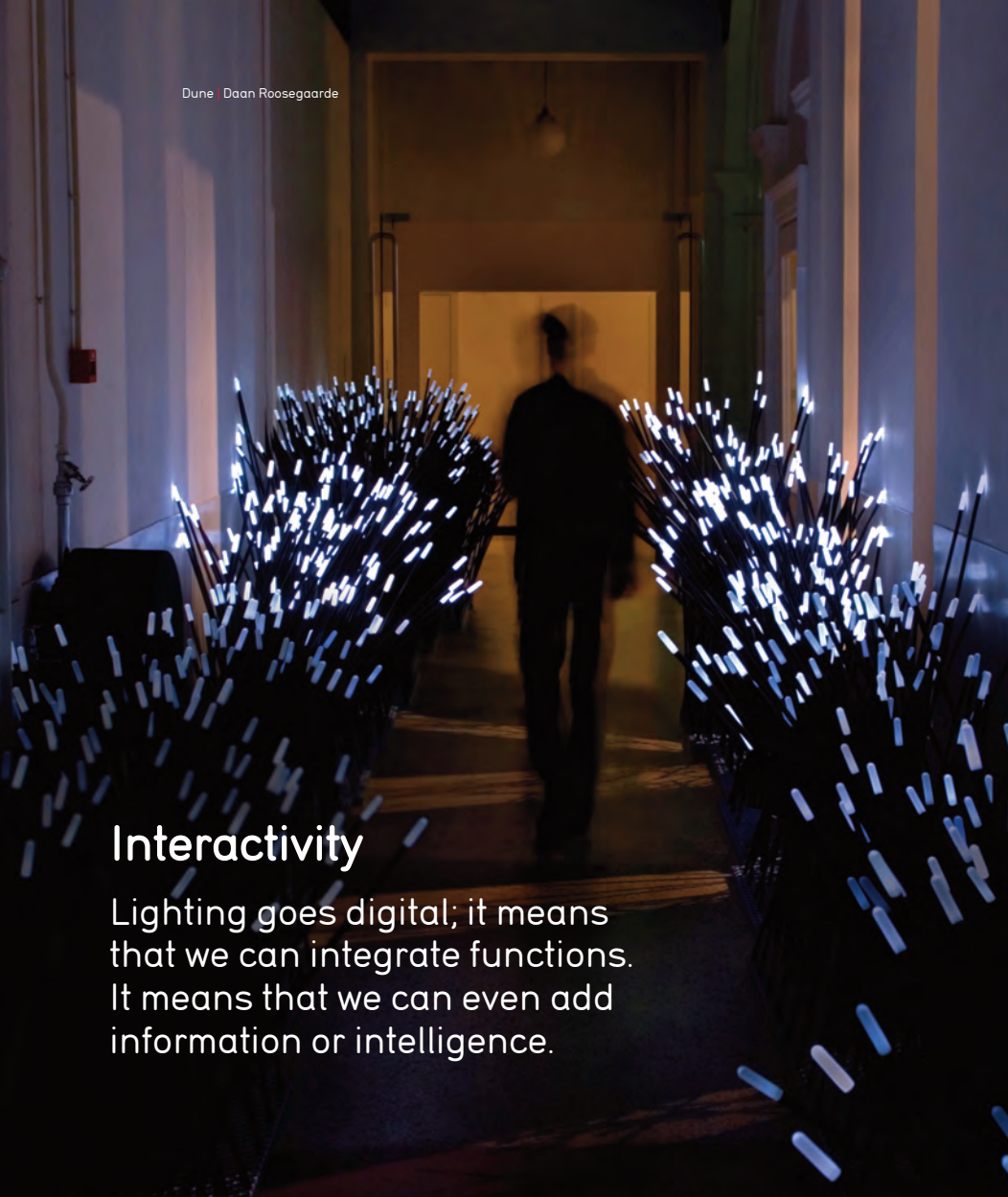
Philips explores opportunities for integrating light therapy into the baby's blanket

Beautification

'The expression of the architecture will come from its lighting, rather than its structure.'

Denise Scott Brown, architect

Dune | Daan Roosegaarde



Interactivity

Lighting goes digital; it means that we can integrate functions. It means that we can even add information or intelligence.



Dancerail | Eric Toering, Frank de Jong, Pakwing Man in cooperation with David Kirsh (Intelligent Lighting Institute)

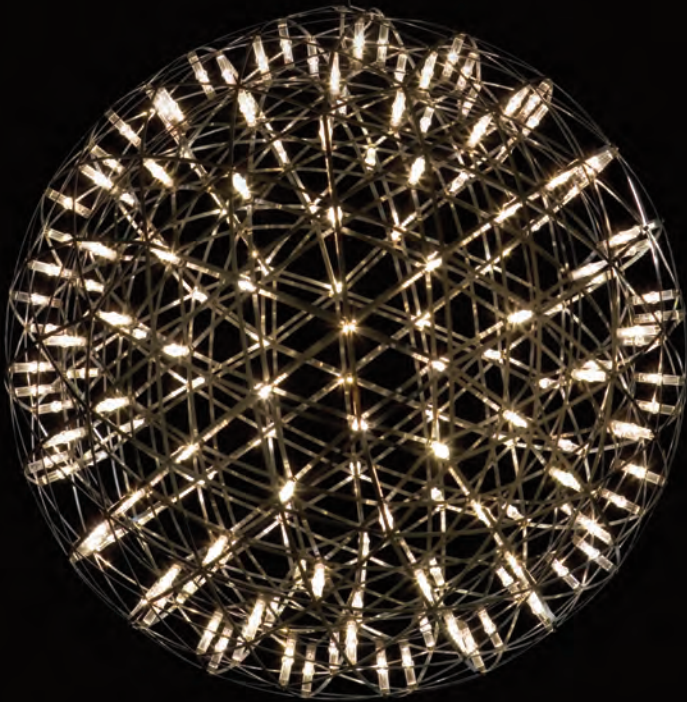


Nebula | Nyoyin
(photo: Patrick Meis)

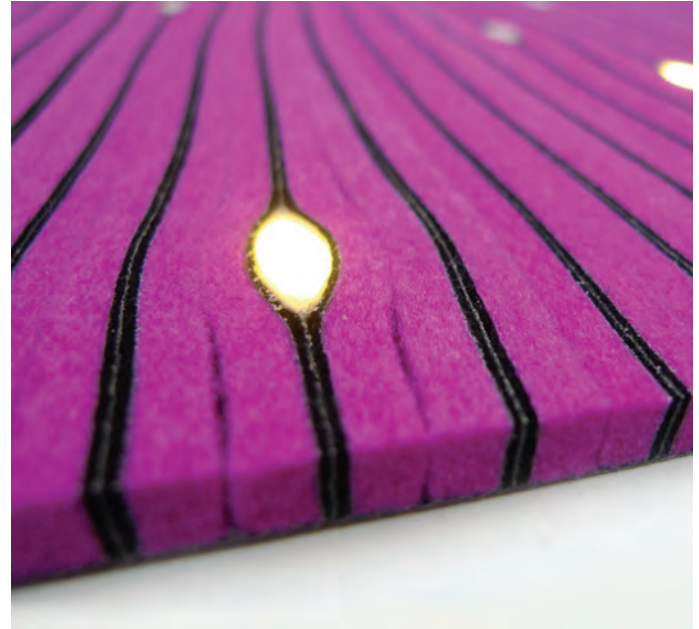
Form follows (O)LED

'When it comes to LEDs and OLEDs, just about the only limit is your imagination.'

Kristin Knappstein, manager Creative Lab, Philips Lumiblade



Raimond | Raimond Puts with Ox-ID / Moooi



Cell LED Carpet | Lama Concept



Zeno Lampada Giraffa | Lijmbach, Leeuw & Vormgeving / Zeno products



Solar Birdhouse | Oooms

colophon

Exhibition Liberation of Light on tour

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Yksi Design designs furniture, accessories and other products inspired by their constant interest in new shapes, materials and production methods. Yksi also creates exhibitions as 'Yksi Expo' and supports Dutch Design with their shop 'Yksi Winkel'.

Design Cooperation Brainport is a broad collaboration between various design organizations in Brainport which aims to stimulate and connect creative initiatives that strengthen the region's (international) reputation in the field of top technology and design.
