

Electro Optics

Media information 2023

The multi-platform resource that helps you share photonics innovation and insight – for industry, R&D and academia professionals



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Why Electro Optics?



Reaching an engaged audience has never been more important, and cutting through the market noise to build awareness of your brand has never been harder. With new products and opportunities entering the photonics market all the time, **making your brand stand out** and influencing change is a real challenge.

Electro Optics is a hub of analysis, feature content, lively debate, technical updates and industry news, making it an **essential platform to support your marketing campaigns**. Our profile in the industry – paired with our understanding of your current challenges and our expert knowledge – provides a strong foundation for success.

Photonics industry professionals rely on our content to **share insights, identify solutions** and **pursue partnerships** to drive their business forward.

Do you want to reach **heads of R&D, CTOs, engineers, photonics users** and **researchers in academic departments**? Our experienced team will recommend the best campaign approach that focuses on influencing your target audience at every single stage of the marketing funnel.



‘It’s great to have a partner covering industrial and scientific topics in a very professional manner. *Electro Optics* is one of our strategic partners’

Europe Newport
Spectra-Physics GmbH

‘We were looking for someone to help us channel our technical expertise and product promotion, but also support us with their own expertise. *Electro Optics* continuously presents new and better ways to get visibility and adjusts according to market developments and the needs of its clients’

Edmund Optics

Understanding the year ahead

There aren't many industries that hold as much promise as photonics to **transform the way we store, process and move data**. And, each year, the possibility of overcoming the limits of electronics edges closer to commercial reality.

Light-based chips are enabling new possibilities in computing, sensing and communication. And start-ups at the cutting edge of this field are making huge strides – not just in making technical breakthroughs, but overcoming the colossal task of matching the manufacture and cost of electronics. 2022 saw **numerous start-ups raise capital, form relationships with foundries and set up supply chains**; 2023 will see more advances in this area.

The past 12 months have seen Europe and the United States establish **policies to boost competitiveness in chip research and production**. With

global issues – from the pandemic to geopolitics – affecting the availability of semiconductor materials, regions are investing billions to build resilient supply chains. This provides opportunity for the photonic integration space but **associations such as EPIC are advocating to ensure the sector is properly recognised in policy** – there will be much to talk about here in 2023.

Quantum is a transformational technology where optics and photonics are real enablers. A vibrant industry is emerging now, with dedicated conferences and exhibitions at major events such as Laser World of Photonics

'Light-based chips are enabling new possibilities in computing, sensing and communication'

and Photonics West. Some quantum devices are finding real-world use – quantum gravimeters are being used to monitor volcanic activity at Mount Etna, for example. But the race is also long – with plenty of industry experts saying that, in the short term at least, huge revenues won't be generated from quantum technology. At the same time, **huge interest in this area is pushing up government funding and venture-capital investment**. With strong industry-research links in this area, quantum photonics consortiums are being established across Europe.

Photonics is moving closer to the consumer world. Major tech giants such as Google, Apple and Microsoft are hiring optics engineers and are keen to be seen in the market. This highlights the important role photonics now plays in device infrastructure. Optics engineers are in greater demand than ever before

‘Google, Apple and Microsoft are hiring optics engineers and are keen to be seen in the market’

and this is causing recruitment pressure. Associations, academia and industry recognise this and there is collaborative effort on all fronts – from creating education kits for pupils to organising travelling photonics career fairs.

Consumer applications are driving innovation in optics: they are becoming smaller, cheaper and more functional. More than a decade of research led to the first commercial planar metasurface optics being launched inside a 3D sensor in 2022, enabling new forms of sensing in devices such as smartphones. The quality of printed optics has improved to the point where they are now being used in endoscopes and imaging applications,

which was impossible just a few years ago, and innovations in liquid-crystal technology are being developed for virtual-reality glasses. It will be exciting to see how the consumer space will drive future innovation in the design and manufacture of optics.

Another sector where weight, size and cost is crucial is the medical device industry. **The need for powerful, accessible diagnostic tools** was highlighted during the pandemic and remains crucial for countering future viruses and threats such as antibiotic resistance. Photonics is the true enabler for minimally invasive devices and techniques such as Raman spectroscopy, OCT and optoacoustic imaging offer much promise. World-renowned photonics institutes are finding new ways to investigate the human body, while photonics companies are involved both in world-class research projects

and selling key enabling components to medical-device manufacturers.

James Webb Space Telescope’s spectacular images are an inspiring accumulation of 30 years of innovation and development – and that **journey of scientific discovery is still in its infancy**. Many optics and photonics companies helped to develop and supply components to the world-famous project, and many of those innovations have filtered down into other industries such as lithography. It’s the perfect example of how photonics is changing the way that we see everything.

‘Consumer applications are driving innovation in optics: they are becoming smaller, cheaper and more functional’

A global audience

Electro Optics delivers quality content to a diverse audience across print, digital and social media. As a central hub of knowledge and information, subscribers rely on our content to make critical decisions about who is important to reach and where investment to support new technology and innovation should be focused.

Sectors we serve:

- Academia
- Original Equipment Manufacturers
- Photonics companies
- Start-up businesses

Monthly reach of more than 19,500

Job titles represented include:

- Chief Executive Officer (CEO)
- Chief Technology Officer (CTO)
- Head of Department
- Head of Engineering
- Head of Research
- Head of Research & Development
- Technical Director



15,500 monthly page views. Last year saw a 50% increase in web traffic



Our registered subscribers have an average session duration of **4 mins 42 secs** demonstrating true engagement in our trusted content

More than **9,000** email subscribers

Average email open-rate of **21%** and click-through rate of 9%



8,900+ social media followers

in **5%** LinkedIn engagement rate

3% Twitter engagement rate

Editorial calendar 2023/24

Issue	Features	Tech Focus
February	<ul style="list-style-type: none"> Life sciences Quantum Remote sensing 	<ul style="list-style-type: none"> Positioning equipment Optics in astronomy
March	<ul style="list-style-type: none"> Extended reality (AR/VR/MR) Functional optical surfaces Lidar 	<ul style="list-style-type: none"> Optical filters Prisms
April	<ul style="list-style-type: none"> Photonic integrated circuits Laser optics Optical coatings 	<ul style="list-style-type: none"> Solar Neurophotonics
May	<ul style="list-style-type: none"> Spectroscopy Environment/energy efficiency Solar 	<ul style="list-style-type: none"> Single-photon counting Optical fibres
June	<ul style="list-style-type: none"> Point of care Optical metrology Optics for phones/consumer 	<ul style="list-style-type: none"> Diode lasers Freeform optics
July	<ul style="list-style-type: none"> Space communications Fibre optics Short wave infrared sensing (SWIR) 	<ul style="list-style-type: none"> Raman spectroscopy Photonic crystals
August/ September	<ul style="list-style-type: none"> Freeform optics Spectroscopy Ultrafast lasers 	<ul style="list-style-type: none"> Safety Life sciences
October	<ul style="list-style-type: none"> Optical communications Fibre lasers Optical design software 	<ul style="list-style-type: none"> Interferometry Optics for imaging
November	<ul style="list-style-type: none"> Microscopy Lithography Displays 	<ul style="list-style-type: none"> Beam analysis Optical mirrors
December/ January	<ul style="list-style-type: none"> Lighting and illumination Photonic integrated circuits (PICs) Additive manufacturing 	<ul style="list-style-type: none"> Optical design software Optical coatings

Critical event distribution

Recognised as a trusted publication in the photonics market, *Electro Optics* is distributed at events spanning key industry sectors including Automotive, Defence, Electronics, Medical, Optical Communications and Pharma.

We work closely with leading partners, helping to facilitate an essential platform for innovation and collaboration. By aligning your event marketing activity with our **extensive distribution programme**, you can take advantage of a unique opportunity to reach a captive, global audience of professionals.

Some of the global partners and events we work with include:

- AutoSens Brussels
- AutoSens Detroit
- CIOE
- CLEO
- CS International Conference
- ECOC Exhibition and Conference
- EPIC Annual General Meeting
- ICALEO
- Laser World of Photonics
- Optatec
- PHAPPS
- PIC International Conference
- Photoptics
- Photonics21 AGM
- SPIE BioS
- SPIE Defense & Commercial
- Sensing
- SPIE Medical Imaging
- SPIE Optics + Optoelectronics
- SPIE Optics & Photonics
- SPIE Photonics Europe
- SPIE Photonics West
- SPIE Photonex
- W3+
- W3+ Rhine Valley

Product overview

Influence every stage of the marketing funnel through our five defined campaign pillars

In the search for innovative solutions and actionable insights, photonics professionals turn to *Electro Optics* to help drive brand engagement, reach a wider audience and **grow their business**.

Electro Optics presents the ideal platform to **reach new customers** with a breadth of opportunities across multiple platforms to help you achieve your business goals.

Positioned as the leading information source for the industry, we can help you communicate your key marketing messaging to a **qualified audience** of professionals and grow your network.

Work with our experienced account managers to launch a multi-platform campaign, focused on **achieving your marketing goals**.

> Making your content work harder

Harness the power of multi-platform campaigns and reach a wider audience with the content you have worked hard to create.

> Generate quality leads

Widen the net and collect leads from those that influence the buying process and are actively looking for new solutions and insights from trusted brands.

> Boost brand awareness

Place your brand amongst trusted independent content distributed globally to professionals in your sector, both in print and online.

> Present innovative solutions

Promote new solutions or emerging technologies through targeted online advertising and email campaigns reaching key decision makers.

> Lead the discussion

Position your organisation's experts on critical topics through collaboration with our content and showcase your brand as an industry thought-leader.

The magazine



Key benefits

Distributed in print and digital formats, the magazine offers you the opportunity to **present your own message** alongside highly-respected, editorially-relevant content.

Our magazine helps you **build your campaign** by creating visibility among our loyal subscribers and a growing network of industry-event attendees.

Each issue of our magazine is seen by a global audience of more than 14,000 in both print and digital

Production details

Advertising deadlines are as follows:

2023 issue	Ad deadline
February	12/01/2023
March	16/02/2023
April	16/03/2023
May	20/04/2023
June	25/05/2023
July	06/07/2023
August/September	03/08/2023
October	14/09/2023
November	12/10/2023
December/January	16/11/2023

See pages 22 & 23 for mechanical specifications

Price

	x1	x4
Full-page	£4,125	£3,300
Half-page	£2,585	£2,197
Third-page	£2,189	£1,859
Quarter-page	£1,458	£1,239
Premium positions +20%		
Outsert	£4,945	
Digital edition sponsorship	£2,200	

SAVE when you book an advert in multiple issues

> Boost brand awareness

> Present innovative solutions

The website

Key benefits

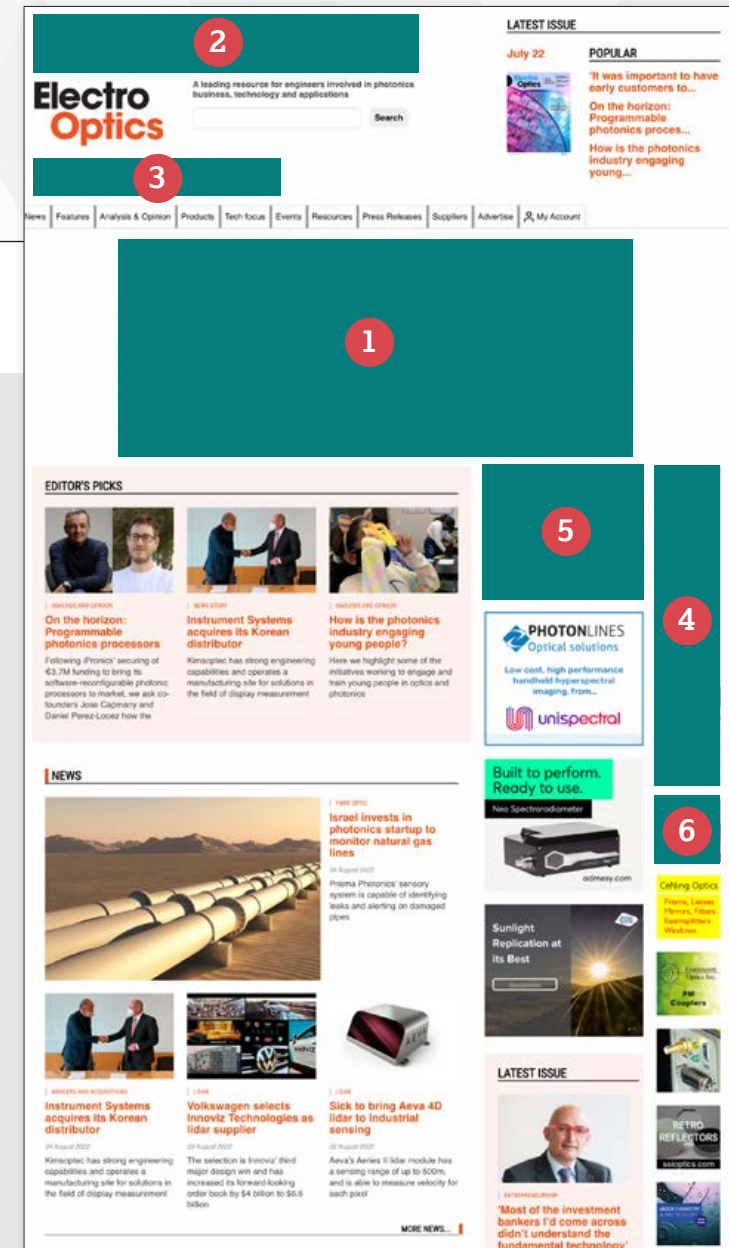
We offer an **extensive range of digital advertising formats** and electrooptics.com is fully mobile-optimised.

Elevate your **brand visibility** alongside relevant and trusted photonics content.

All digital options, sizes and price for each as shown in this example

- 1 Dropdown banner: £2,530 per month**
(opens for four seconds as a large advert, then drops back to a smaller version)
- 2 Leaderboard: £2,195 per month**
Desktop size 728 x 90 Mobile 300 x 100
- 3 Top banner: £1,925 per month**
Desktop size 468 x 60 Mobile 300 x 100
- 4 Skyscraper: £1,650 per month**
Desktop size 120 x 600 Mobile 300 x 100
- 5 Box ad: £1,430 per month**
Desktop size 300 x 250 Mobile 300 x 100
- 6 Right button banner: £545 per month**
Desktop size 120 x 120 Mobile 120 x 120

All measurements in pixels



> Boost brand awareness

> Present innovative solutions

Newsline

Key benefits

Read by **buyers and influencers** in the industry, you can deliver your brand straight to the inbox of our opt-in subscriber database.

At 20%, our established open-rate is well above average and we have five banners available on each Newsline, offering you **optimum exposure** in front of our engaged audience.

Production details





- 468 x 60 banner
- 300 x 100 mobile banner
- URL link


Price

£1,425


Sent via email to our opt-in subscriber database of more than 9,000*

*limited to five banners per Newsline.


Share this email




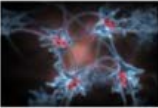


Latest news




Finalists for Laser Munich Innovation Award announced
15 finalists have been selected by a panel of expert judges for the award, which will be presented at Laser World of Photonics later this month.

[Read more](#)




Accelerating artificial neurons with photonic circuits
Physicists at the University of Vienna have demonstrated a new device, called a quantum memristor, which may allow scientists to combine AI and quantum computing. In order to unlock unprecedented capabilities for research.


[Read more](#)



Tests validate anti-bacterial effectiveness of UVC LEDs
Researchers at Guangzhou Institute of Microbiology have shown that UVC LEDs from Bob achieve a 99.95 per cent kill rate for airborne viruses and bacteria.


[Read more](#)






New ALD system can precisely coat complex-shaped optics
The system achieves higher deposition rates than previously possible, and could apply to the automotive lighting or VR/AR sectors.

[Read more](#)



Chromacity partners with Tematys
The new partnership will see Tematys align the technological sourcing requirements of French organisations with the capabilities of Chromacity's ultrafast lasers.

[Read more](#)



'Whatever your age, if you want to set up a company, just go for it'
Carlos Lee, EPIC's director general, talks to Heikki Timonen, director of GEHT International.

[Read more](#)

> Boost brand awareness

> Present innovative solutions

Productline

Just two
exclusive
Productline
boost placements
are available
each month

Key benefits

Productline is designed to **support your launches**, regularly drip-feed product news to a defined audience or strategically supplement a wider, multi-channel campaign.

electrooptics.com is a **trusted resource for decision-makers** in the photonics sector and a cost-effective solution to boost visibility and make your product stand out.

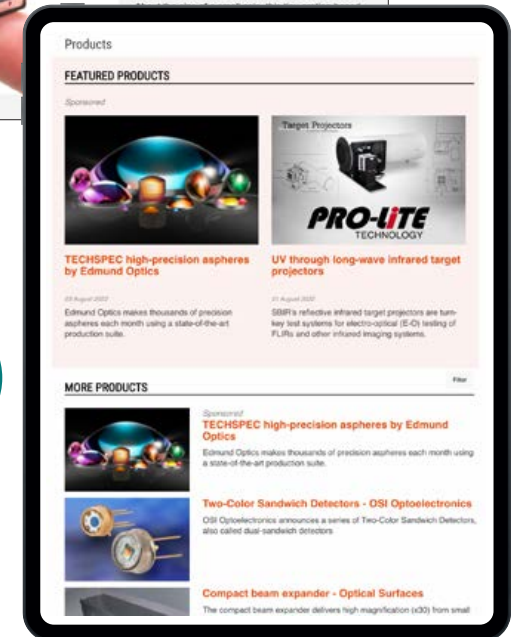
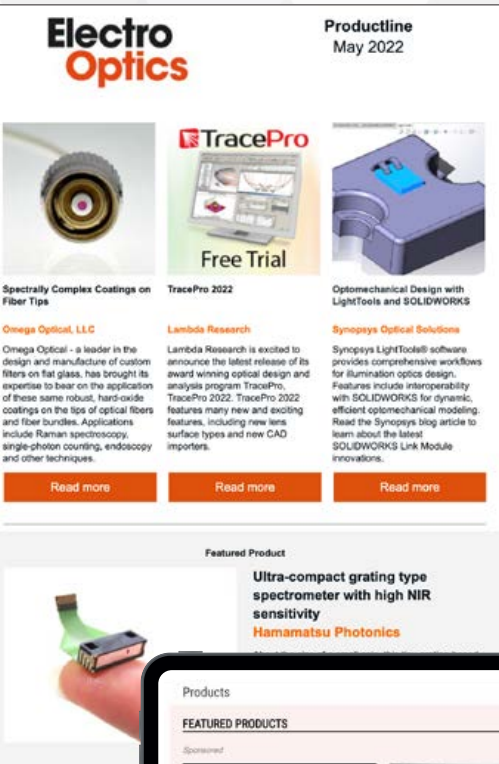
Production details

- Headline,
- 190 x190 image
- 40 words and URL

Price

For prices, see below. Sent via email to our opt-in subscriber database of more than 9,000

	Productline £550	Featured Productline £935	Productline Boost £1435
Productline email listing	✓	✓	✓
Featured Productline email listing		✓	✓
Online product listing			✓



> Present innovative solutions

> Boost brand awareness

Key benefits

Analysis and Opinion (A&O) columns are written by **leading experts** from the world of photonics.

Associating your brand with this type of high-end, opinion-forming content creates a platform for **broader influence** beyond your specific product campaigns. This represents a perfect showcase for your brand values.

Production details

● Logo

Price

£1,095 per issue

You will receive a logo placement across multiple platforms, as A&O is delivered in-print, hosted online and via a standalone email

For UK photonics to reach £50bn, the innovation landscape must create more space for risk

Better support is needed for the development of photonics at the component level, which is not thriving under current short-term challenge-led funding programmes, finds **Jessica Rowbury**

By 2035, UK photonics will be a £50 billion industry, add an additional 150,000 direct jobs and be one of the top three most productive manufacturing sectors in the UK.

This is according to a report, 'UK Photonics Vision for 2035', published in November 2021 and commissioned by the Photonics Leadership Group (PLG).

or three years and innovating in the system takes two or three years. You can do some innovation in parallel, but not all of it. So it requires a longer amount of time and it's high-risk. Governments should be helping to reduce risk in that.'

Giving better support for component innovation is also important for building UK photonics into the system stack,

innovation – but highlighted that innovation agencies must rethink how they've always done things in order to make this possible. 'You need to overcome the system level issues that mean that you can't do challenge-based funding. What we really need to recognise is that our innovation strategy says you must balance. So that's sort of the sort of a message that if you do that, look at the monster industry you can grow.'

Andy Sellars, strategic development director for the UK's Compound Semiconductor Applications Catapult, who is responsible for ensuring the accelerator is creating the greatest impact for the UK economy, said: 'We need to move away from a funding approach based on seedling a balanced approach.' Under the Industrial Strategy Challenge Fund, we've tended to see more programmes

Will photonic chip innovation thrive under the European Chips Act?

Europe's volume silicon photonics manufacturing capacity has not been directly addressed in the Commission's plan, which could limit overall digital sovereignty plans. *Electro Optics* speaks to **Abdul Rahim** at ePIXfab – the European Silicon Photonics Alliance

On 8 February, the European Commission proposed a plan to tackle semiconductor shortages and boost competitiveness. The Chips Act aims to help the semiconductor sector from building research and development to production capacity and creating a resilient supply chain. More than €43bn

silicon photonics. We need such capacity in Europe if we are to have the full spectrum of digital services," Rahim said.

TSMC, for example, as well as producing advanced chips for the likes of Apple, volume manufactures photonic chips for numerous companies at ease. "If the Chips Act only focuses on the most advanced chips, when we need them, European silicon photonics companies will still need to go outside of Europe for their volume manufacturing needs. So, I think this is not clearly addressed," said Rahim.

"There are numerous companies, such as PsiQuantum and Cincio, that partner with volume manufacturing fabs for their products, which have silicon photonics building blocks."

Chip shortage dominates supply chain roundtable discussion



How are photonic firms mitigating logistical disruptions?
Warren Clark reports

The chip shortage is a long-term problem for the photonics industry, according to those attending the Electro Optics roundtable: comtech@chips.com

option", said one participant. On the innovation side, vendors are already "designing round" the issue – if the chip isn't likely to be available,

the development of new technology has to take that into consideration at the R&D stage, meaning the use of different chips or programming algorithms. For the most part, customers are tolerant and understanding of the need to change a product design from that which may have been

One vendor mentioned they had a mitigation plan for "black swan" events, such as a major conflict or pandemic, that means they had built up an "oil reserve" of raw materials that was only to be touched in extreme situations, like the one we're currently experiencing (and exacerbated by the situation in Ukraine at the moment).

A common mitigation approach is being honest with

available from a patented brand." Similarly, getting an older product repaired might be an easier solution than buying a new one.

De-risking the supply chain can be a tough exercise, particularly for SMEs. In essence, this means identifying and resolving 'pointy bits of failure' – that is, where one is heavily dependent on one particular supplier at a given point in the chain.

It also focuses on the most advanced chips, when it materialises, European silicon photonic companies will still need to go outside of Europe for their volume manufacturing needs."

Europe, he says, must be able to compete on all fronts of chips manufacturing with semiconductor giants, such as TSMC, which are dominant in producing not only the advanced

There were also reported issues with raw materials, such as glass and materials, caused primarily by labour shortages on the manufacturing side, but also the same macro events (pandemic, conflict). A return to the notion of raw material wholesalers might be a future solution, whereby they are licensed to hold stock's key level

the customer as soon as delivery becomes known. 'Not doing so magnifies the problem.' Also staying close to the customer can also help weed out the 'bad orders', as mentioned above.

In some ways, the shortage is creating opportunities for sales, particularly as brand loyalty is being broken simply due to availability. 'Having a product that works is much preferable to not having one that isn't

"One vendor mentioned they had built up an 'oil reserve' of raw materials that was only to be touched in extreme situations"

<p>Brexit impact The consensus was that Brexit uncertainty has now settled down, 'but that's not necessarily "good" settled'. Shipping times.</p>	
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paperwork and costs have all increased, and in some cases suppliers have chosen not to send goods to the UK on the grounds that it's now more hassle than it's worth. Part of that 'hassle' is the need for

DATA TESTING (an equivalent of the EU-wide CE testing). At the moment, those standards are the same, meaning the inconvenience is largely limited to rubber-stamping extra paperwork, but Bosait means that, at some point in the

To mitigate these issues, some vendors have added a distribution hub in Germany, for example, whereas previously the UK was able to service the

continent. Shipping lanes are avoiding going through the UK too. There was pretty much universal endorsement among participants for DHL, as a courier that seemed ready to deal with UK-EU shipping. **to**

> Boost brand awareness

Webcasts



Key benefits

A chance to position your brand as an expert in a key topic through powerful, engaging content that generates **high-quality leads**.

Choose from editorially led webcasts or **drive the debate** with a topic of your own choice that's supported by our in-house creative team.

Price & options

Sole sponsorship £8,800

- Branding on all marketing promotions
- **Electro Optics** as host, moderator and coach
- Pre- and post-event email promotions
- House advert in the magazine
- Social media coverage
- MP4 of the webcast for you to keep
- A supplied list of all of the questions asked during the session
- All leads, including opt-in delegate marketing leads

Editorial webcast sponsorship £1,645

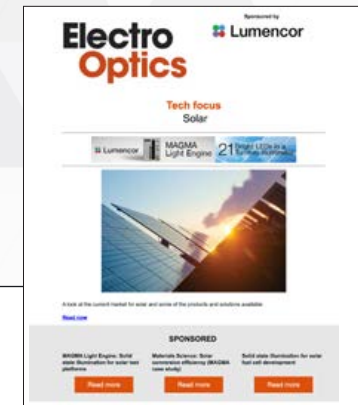
- Branding on all marketing promotions
- All opt-in delegate marketing leads

> Lead the discussion

> Generate quality leads

> Boost brand awareness

Tech Focus



Key benefits

Tech Focus spotlights a particular area of technology and delivers **a definitive overview**, plus insight into products that are currently available across the market.

You can **place your unique solution** alongside relevant content promoted across our digital products and the magazine.

2023 issue	Topics
February	<ul style="list-style-type: none"> Positioning equipment Optics in astronomy
March	<ul style="list-style-type: none"> Optical filters Prisms
April	<ul style="list-style-type: none"> Solar Neurophotronics
May	<ul style="list-style-type: none"> Single photon counting Optical fibres
June	<ul style="list-style-type: none"> Diode lasers Freeform optics
July	<ul style="list-style-type: none"> Raman spectroscopy Photonic crystals
August/September	<ul style="list-style-type: none"> Safety Life sciences
October	<ul style="list-style-type: none"> Interferometry Optics for imaging
November	<ul style="list-style-type: none"> Beam analysis Optical mirrors
December/January	<ul style="list-style-type: none"> Optical design software Optical coatings

Price & options

Lead sponsorship £3,245

- Exclusive branding on magazine and online Tech Focus
- Sole branding on Tech Focus email, including 468 x 60 banner
- Top-spot 'enhanced product'
- Three x key positions linking to your content in the Tech Focus email

Enhanced product entry £1,100

- 150 words, plus a high-res image, highlighted in the magazine
- Product summary in Tech Focus email
- Full product listing online

> Making your content work harder

> Present innovative solutions

White Papers

Key benefits

A White Paper promotion with *Electro Optics* allows you to harness the value of your expertise by **presenting the critical principals of your technology** to an engaged, knowledgeable audience.

Promoted across multiple platforms in both print and online; your curated content will be **seen by key decision makers**.

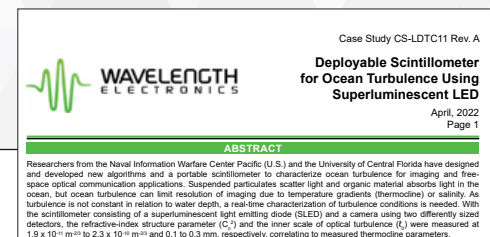
Production details

- PDF-ready version of your White Paper

Price

£1,375

- Hosted online for an entire year
- Promoted via our email and social media campaigns
- Highlighted in a magazine house advert
- Option to gate content and collect quality leads



> Making your content work harder

> Generate quality leads

Feature Case Study

We grant full copyright, so you can share your Feature Case Study as part of your marketing campaigns

Key benefits

A Feature Case Study represents a unique opportunity to **present your proven solution** in the context of an editorially-relevant, independent article.

Promoted both in the magazine and online, we will work with you to create a **high-quality piece of content** of your solution in action.

Production details

- 750 words
- Featured image

Price

£3,245


Exclusivity, with only one Feature Case Study available per article*

* Check the calendar on page 7 to pick the most relevant theme

SPONSORED: OPTICAL DESIGN SOFTWARE

Improving and optimising spectrometer designs

Figure 1. Curved grating spectrometer in OSLO



Spectroscopy is the study of the emission and absorption of light. A spectrometer is a device that splits light into its component wavelengths, typically using a grating, and then measures the power/energy of the light as a function of wavelength. The detector can be either a single element, a 1D or a 2D array detector. There are numerous types of spectrometers such as Czerny-Turner, crossed Czerny-Turner, concave grating, fluorescence, and many other types. Spectrometers can also be either reflective or transmissive.

to the concave grating. The detector in this spectrometer is a linear array detector. Once the spectrometer model has been built, properties can be applied to the model and light sources defined. Examples of properties applied are reflectivity and scattering parameters for the two mirrors, and absorption and scattering for the coatings inside the spectrometer. Other parameters such as absorption, transmission, and reflectivity of the detector and detector

SPONSORED: HYPERSPECTRAL IMAGING

Gaining an edge when designing a hyperspectral imaging system



Hyperspectral and multispectral imaging techniques were originally developed for military and space applications for aerial imaging. In recent years, other industries have seen the advantage of these techniques and adopted them, such as quality control inspection in agriculture and semiconductors, DNA sequencing and PCR testing, anti-counterfeiting, emissions monitoring, and traditional machine vision applications in industrial settings – the list goes on.

Hyperspectral imaging is used to capture a wavelength intensity map of a field of view (FOV) with high spatial resolution. This combination of spectral data at each pixel, combined with the corresponding spatial data enables the analysis of a range of characteristics including colour, chemical content and other spectroscopic detail.

Important system components
Most hyperspectral imagers are configured as a scanning 'push-broom' imager. This means that for each frame capture, the FOV observed by the system imaging lens is collected through a slit aperture onto or through a diffractive element (grating) and dispersed onto a two-dimensional (2D) sensor array. The axis of the sensor which is congruent with the slit aperture captures the spatial information of the scene, while the spectral information of that scene is collected by the sensor pixel array orthogonal to the slit aperture.

In practice, this push-broom configuration is used to collect data on a moving scene, whether the scene is moving relative to the camera (fixed inspection on parts on a conveyor) or the camera is moving relative to the scene (camera attached to a drone flying above the scene). All of these frames can then be combined to create a 'hyperspectral data cube' which contains X and Y (spatial) information on the scene, with a range of spectral data for each X and Y location.

An alternative to the traditional push-broom imaging configuration is to image the scene directly using a 2D sensor array and a linear variable filter (LVF). An LVF is a unique type of interference filter where spectral performance varies along one axis and is constant along the orthogonal axis. It can be a narrow bandpass design, providing spectral discrimination, or a long pass design and used as an order sorting filter in a grating-based spectrometer. In both cases, spectral performance shifts in a consistent manner as a function of wavelength along the filter. The use of a filter to replace the grating or prism in an imaging system results in a significant reduction in weight, size and cost of the imager. High spatial resolution allows for discrimination of fine detail, texture and resolution of a scene. The design of an imaging system using a linear variable filter requires attention to a number of unique details.

"An LVF is a unique type of interference filter where spectral performance varies along one axis and is constant along the orthogonal axis"

The spectral resolution of an LVF camera is limited by the bandwidth of the filter, the operating F-number of the imaging system and the distance between the filter and the detector. Alignment of the filter to the detector array is important in extracting spectral information.

Important Design Considerations
Choosing the right light source is a significant consideration when using an LVF camera. Fluorescent or LED lighting consists of strong spectral bands and therefore solar or incandescent lighting is preferred. An important tradeoff of the LVF camera is that it does not generate a true hyperspectral data cube. The wavelengths in the spectrum correlate to the position of the camera's LVF/pixel wavelength. A wavelength versus frame number is created for each pixel, but the spectral scan for each point will potentially contain a different number of points at different wavelength intervals from other points in the image. Nevertheless, the LVF camera images can be stitched together and each point can produce a unique spectrum allowing for identification or characterisation of the object at that point.

Omega Optical Holdings comprises Optometrics and Omega Optical have aided countless partners to select the right components to maximise their system performance. Optometrics has the rare combination of manufacturing ruled, holographic (reflection and transmission), and replicated gratings which enable the team to recommend a grating from its extensive library which will minimise scatter and maximise efficiency. Omega Optical is a leader in the production of LVFs, and will help partner companies to navigate the trades when selecting LVF bandwidth, gradient, and physical size. **EO**

Further information
www.omegaoptics.com
www.optometrics.com

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> Lead the discussion

> Making your content work harder

Viewpoint

Key benefits

Take this opportunity to **share experience and knowledge** to present an opinion on industry-wide matters that others will be interested to hear.

Raise the personal profile of a key voice in your business and show how that expertise within your company places you ahead of your competitors.

Production details

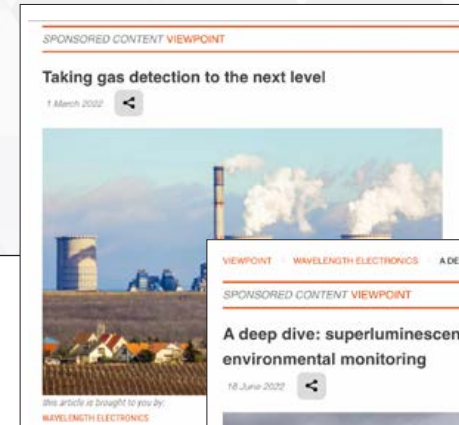
- 750 words
- Featured image

Price

£1,375*

(*additional writing and content charges may apply)

- Hosted online at electrooptics.com
- Promoted by email to our opt-in subscribers
- Promoted through house adverts in the magazine



> Lead the discussion

> Making your content work harder

White Paper + Featured Technology

Key benefits

If you have a genuinely disruptive technology, **we will create an article** that uses the information detailed in your White Paper as the catalyst.

We **showcase your technology and demonstrate its critical impact** in a wider context and stimulate debate through this unique editorial approach.

Production details

- 1,200-word feature (written by us)

Price

£3,245

- Appears as two pages in the magazine
- Comprising a 1,200-word feature (written by us), plus a half-page house advert
- Also appears online as a Viewpoint, directing the audience towards your White Paper
- Hosted on electrooptics.com



White Paper

- Promoted via an email campaign
- Highlighted via a house advert in the magazine
- Option to gate the White Paper online and collect lead data

> Present innovative solutions

> Making your content work harder

> Generate quality leads

Marketing services

Are you struggling to create high-quality content?

We understand that while many of the products detailed within our media pack complement your broad marketing objectives and serve to position your brand as a genuine industry leader, it can be a challenge to create the content to take full advantage of the opportunity. With

this in mind, we have designed a comprehensive menu of dynamic content creation options that allow you to work with our client success team and editorial experts to produce results that will maximise the effectiveness of our print and digital platforms.

● **Enquire for prices**



Need wider support?

Europa Science has a sister company: Europa Market Intelligence (EMIL). EMIL can support your wider marketing objectives; assisting your market exploration, data building and content creation efforts.

● **Price on application**
jon.hunt@europascience.com



Client success team

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Print specifications



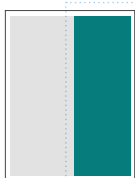
FULL PAGE

Trim (Page size)
213mm (W) x 282mm (H)
Bleed (+3mm all around)
219mm (W) x 288mm (H)
Non bleed ad
189 (W) x 258mm (H)



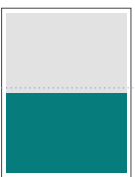
DOUBLE PAGE SPREAD

Trim (Page size)
426mm (W) x 282mm (H)
Bleed (+3mm all around)
432mm (W) x 288mm (H)
Non bleed ad
402 (W) x 258mm (H)



HALF PAGE VERTICAL

Trim
104mm (W) x 282mm (H)
Bleed (+3mm all around)
110mm (W) x 288mm (H)
Non bleed ad
92 (W) x 258mm (H)



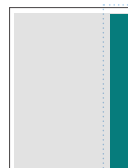
HALF PAGE HORIZONTAL

Trim
213mm (W) x 141mm (H)
Bleed (+3mm all around)
219mm (W) x 147mm (H)
Non bleed ad
189 (W) x 129mm (H)



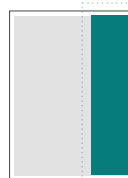
QUARTER PAGE

Non bleed ad
92mm (W) x 129mm (H)
Bleed ad not available



QUARTER PAGE STRIP

Trim
55mm (W) x 282mm (H)
Bleed (+3mm all around)
61mm (W) x 288mm (H)
Non bleed ad
42mm (W) x 258mm (H)



1/3 PAGE VERTICAL

Trim
71mm (W) x 282mm (H)
Bleed (+3mm all around)
74mm (W) x 288mm (H)
Non bleed ad
59mm (W) x 258mm (H)



1/3 PAGE HORIZONTAL

Trim
213 (W) x 94mm (H)
Bleed (+3mm all around)
219mm (W) x 100mm (H)
Non bleed ad
189mm (W) x 85mm



1/2 PAGE ISLAND

Non bleed ad
140mm (W) x 195mm (H)
Bleed ad not available



2/3 PAGE VERTICAL

Trim
136mm (W) x 282mm (H)
Bleed (+3mm all around)
142mm (W) x 288mm (H)
Non bleed ad
124mm (W) x 258mm (H)



1/3 PAGE SQUARE

Non bleed ad
125mm (W) x 125mm (H)
Bleed ad not available

Recommendation

If you are supplying a bleed ad, we recommend that any text or important information is placed at least 10mm from the edge of the advert, to allow for any discrepancies when the magazine is trimmed by the printer.

Trim

These dimensions are where the page will be cut if you would like your advert to run right to the edge of the page, and represents the final dimensions of the printed magazine.

Bleed

In printing, bleed is printing that goes beyond the edge of where the sheet will be trimmed. In other words, the bleed is the area to be trimmed off.

Non bleed ad

This is the size to create your ad if you wish the advert to have white space all around it on the page, and not run to the edge of the page.

Digital file requirements

PDF-X1a, PDF, EPS, TIFF files are all accepted. All high-resolution images and fonts must be embedded in files. Images must be 300dpi/cmyk.

A complete list of deadline dates can be found on page 7 of these specifications. Please make a note of these when planning your submissions.

Digital specifications

LEADERBOARD

Desktop
728px wide x 90px high

Mobile
300px wide x 100px high

Plus
URL click-through link



SKYSCRAPER

Desktop
120px wide x 600px high

Mobile
300px wide x 100px high

Plus
URL click-through link



TOP

Desktop
468px wide x 60px high

Mobile
300px wide x 100px high

Plus
URL click-through link



DROPDOWN

Desktop – expanded
960px wide x 400px high

Desktop – contracted
960px wide x 60 px high

Mobile
300px wide x 100px high

Plus
URL click-through link



BOX

Desktop
300px wide x 250px high

Mobile
300px wide x 100px high

Plus
URL click-through link



MEDIA & BUTTON

Desktop
120px wide x 120px high

Mobile
120px wide x 120px high

Plus
URL click-through link



● Mobile banners are on rotation

● Please supply both desktop and mobile versions

File type

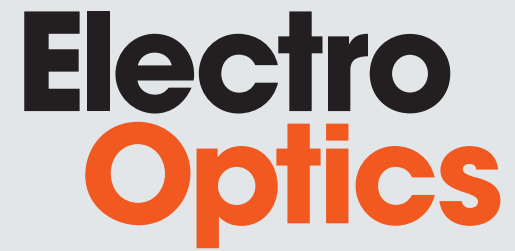
.jpeg
.png
.gif
Google DFP tag
html 5
Flash files are not accepted.

Deadline date

A complete list of deadline dates can be found on page 9 of these specifications. Please make a note of these when planning your submissions.

Send copy to:

production@europascience.com



The multi-platform
resource that helps
you share photonics
innovation and insight
– for industry, R&D and
academia professionals



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