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## Letter from the Director

Dear Faraday Partners,

After one year of operation, the Smart Optics Faraday Partnership is thriving and bringing value to the Faraday Partners and sponsors. To date we have 52 registered Faraday Partners, including 9 academic institutions, 37 SMEs and 6 large multinational corporations. Of these, 18 are already involved in collaborative research projects in Smart Optics technologies with clear commercial potential (details below). I have been particularly pleased to see excellent attendance figures at the Smart Optics Forums held during the year and look forward to the next, to be held in January with a 'Space Optics' theme.

In the coming year, our Technology Translators will be working hard to support more teams submit proposals to funding sources such as LINK, Framework 6 and PIPSS (details on page 3). Don't miss any of these opportunities: contact one of our team if you have an idea or a requirement for Smart Optics technology in your products, and please use our on-line website database to find research partners and inspiration.

Many thanks to all of you who have become actively involved in Smart Optics and contributed your valuable time and resources.

Steve Pickering,  
Director, Smart Optics Faraday Partnership  
CEO, Sira Electro-Optics Ltd



## Smart Optics Successes: Grants Awarded

| Description  | Collaborators  | Type         | Grant | Sponsor             |
|--|--|--------------|-------|---------------------|
| Smart Ophthalmoscope Sensors                               | Warwick University, Keeler Ltd   | CASE Student | £39k  | EPSRC               |
| Smart Laser Marker   | Photonics Consultancy, Loughborough University, Davin Optronics Ltd  | SMART        | £45k  | DTI                 |
| Cryogenic Robotic Mechanisms for Astronomical Spectroscopy | University of Durham, UK Astronomy Technology Centre, Astrium Technologies UK Ltd  | PIPSS        | £150k | PPARC               |
| Optical Manipulation and Metrology                         | Heriot-Watt University, UK Astronomy Technology Centre, University College London, BAE Systems, QinetiQ, Scalar Ltd, Zeeko Ltd | Faraday      | £702k | PPARC/<br>EPSRC/MOD |
| An Adaptive Optics Toolkit                                 | Imperial College, BAE Systems, QinetiQ, Davin Optronics Ltd, OptiSense Ltd   | Faraday      | £337k | PPARC/<br>EPSRC     |
| Smart Ophthalmoscope                                       | City University, Warwick University, University College London, Sira Electro-optics Ltd, Keeler Ltd                            | Faraday      | £266k | PPARC/<br>EPSRC/MOD |

The funds leveraged on these projects, including industrial contributions not shown above, total £2374k

## Space Optics Forum

Space is big business. In the UK alone there are 15,000 people working in the space business, and the annual turnover is nearly £3bn in total. Combining the need to push at the boundaries of what is possible, with the commitment to take the necessary technical risks, space science activities are very important to the development of future commercial and military space hardware. A good example from the many missions being planned at the moment is Darwin: six telescopes flying in formation feeding the light that they collect to a hub spacecraft—all by optical links—and there's another spacecraft for the data handling and ground contact.



Eight spacecraft in all to perform interferometry on a very big scale—Darwin is not just looking for extrasolar planets, it is planning to make measurements of them to see if they could support life.

Spacecraft like Darwin with their extraordinary optical requirements ought to present marvelous opportunities for Smart Optics technologies: but how do we ensure that the space agencies are aware of new developments in this area? How can we ensure that we know about potential missions when they are at a formative stage? What funding is available from the space agencies for technology development? How can SMEs, not already involved in space, join in?

The next Smart Optics forum will try to address these issues: speakers are already booked from the British National Space Centre, the European Space Agency, Astrium and Heriot-Watt and the date is set for 27 January 2003. We have a huge amount of interest from the space science community in this forum, so we need to put up a good showing from our side! The meeting is being organised by Steve Welch ([sjw@mssl.ucl.ac.uk](mailto:sjw@mssl.ucl.ac.uk)), and there will be some space available for poster displays.

Please contact Steve if you have any questions, or if you have any suggestions about how the forum could be most useful to you.

[www.smartoptics.org](http://www.smartoptics.org)

### An essential resource for Smart Optics Faraday Partners

The Smart Optics website has been active since March 2002 and is a valuable information resource for registered Faraday Partners. On it, we regularly post news of events, conferences and calls for proposals relevant to Smart Optics users and researchers. The 'About Us' link leads to a clear description of who we are, what we do, and how we can help you access our services to support your activities in Smart Optics (especially how we can help you access funding for your projects).

Type keyword for knowledge base:

search

Our searchable on-line database contains a valuable resource of documents, hyperlinks and contact details of other Faraday Partners.

To obtain full access to the website and database, you must register as a Faraday Partner. Then we will provide you with a user id and password. Contact us to apply, details on back page.

### New Technology Translator

Since the last edition of the newsletter, Smart Optics has taken on a new technology translator.

Philip Parr-Burman joined the UK ATC in February from Thales Optics, North Wales. He has substantial project management experience of space optics, electronically controlled zoom telescopes and automotive head up displays. He was also instrumental in the introduction of diamond turning technology at Thales.



Philip can be contacted by e-mail on [ppb@roe.ac.uk](mailto:ppb@roe.ac.uk), or by telephone on 0131 668 8431

## Framework 6: the story so far

The EU Framework 6 Programme is the latest in a series of large research initiatives by the European Union aimed at integrating research across Europe in order to create world-class expertise and capabilities. We are told that Framework 6 will be very different from its predecessor, Framework 5. Important changes include:

### Research to be strategic in nature rather than tactical.

This means that projects will be larger (tens of millions of Euros) and the cross-border relationships formed are expected to be long-lasting, rather than just for the duration of the project. There will be an increased emphasis on underpinning 'basic' research with a longer time to market.

**Less bureaucracy.** The EU will no longer require detailed auditing of every aspect of the project team's activities. Payments will simply be made on results, like a standard commercial contract. Whether this will mean more or less work for the project managers remains to be seen!

**More emphasis on integration.** The EU wants to see world-class 'virtual centres of excellence' arising in Europe through Framework 6. These should be able to compete on the world stage with the best in the US and Far East. It believes that this requires researchers in different countries to work together on common goals, avoiding duplication of research and inadequate dissemination of results. A new 'instrument' called a 'Network of Excellence' (NoE) has been introduced to support this. Each NoE will receive funding of several million Euros per year to manage and integrate activities of 60+ researchers in 6 or more countries in a particular research topic. The money will be spent on management, infrastructure, travel, knowledge dissemination mechanisms, but not on research.

**Bigger Projects.** The EU recognises that to achieve world-class capability, and to achieve long-lasting integration of research effort across borders, research projects need to be bigger than they were in previous Framework Programmes. A new 'instrument' called 'Integrated Project'

is designed to address this. Integrated Projects will receive funding of tens of millions of Euros per year and will be aimed at major, tangible goals which will require research effort from many different disciplines and countries. (An example goal: "The aircraft cockpit for 2020").

**Thematic Priorities** To concentrate effort on areas of perceived importance to the EU, priority themes for Integrated Projects and Networks of Excellence have been defined. Loosely, these are: Information Technologies, Nanotechnology, Biotechnology, Aerospace, Food Safety, and Sustainable Development.

The timeline is as follows:

**7 June 2002-** closing date for receiving Expressions of Interest. 16,000 were received of which 60% were for Networks of Excellence. (Failure to submit an Expression of Interest does not proscribe submitting a proposal later)

**September 2002-** publication of all Expressions of Interest and analysis thereof

**11-13 November 2002-** European Research 2002 conference in Brussels to launch Framework 6

**December 2002/January 2003-** First call for proposals

The Smart Optics Faraday Partnership submitted two Expressions of Interest on behalf of members: one in Free Space Optical Wireless Technologies, and one in Surface Metrology for Micromanufacturing. We received support from two German Fraunhofer Institutes and the Polish Institute of Applied Optics.

With the first call deadline rapidly approaching, it is imperative that anyone desiring to get involved with these initiatives should contact us as soon as possible. Furthermore, we know that many Faraday Partners also submitted Expressions of Interest and anyone wishing for Smart Optics support in finding partners, drafting the proposal, organising preparatory workshops, and approaching the Framework 6 organisers should contact us immediately.

Jon Holmes, Partnership Manager.

## News on open calls for proposals

- ⇒ LINK OSDA (Optical Systems for the Digital Age) is now open for outline proposals (deadline 5 November)
- ⇒ LINK Programme 'Basic Technologies for Industrial Applications' is now open. 1st call for outline proposals closes 7 November
- ⇒ PIPSS ('PPARC Industrial Programme Support Scheme') calls open quarterly
- ⇒ DTI SMART Award - always open

Contact a Smart Optics Technology Translator for help with accessing these funding opportunities.

## Technical Report

The Smart Optics Faraday Partnership has issued its first Technical Report on Smart Optics Research in the UK. It comprises summaries of the Smart Optics research of the six original academic Faraday Partner institutions (Heriot-Watt, Imperial, Durham, Oxford, Liverpool John Moores, and UCL) and a review of the exploitation potential of their research in the industrial, space, and ground-based astronomy sectors. It is available on the website [www.smartoptics.org](http://www.smartoptics.org) or in hard copy form, to registered Faraday Partners, on application.

## 2002/3 Diary

See the Smart Optics website  
for further information and links to these events

|                 |  |                         |
|-----------------|--|-------------------------|
| October 24-25   | Photonic Nanostructures 2002   | San Diego, USA          |
| November 5      | Closing date for LINK OSDA outline proposals                           |                         |
| November 7      | Closing date for LINK 'Basic Technologies for Industrial Applications' |                         |
| November 11-13  | European Research 2002 conference                                      | Brussels                |
| December 13     | Advances in Microscopy   | IOP, London             |
| December 16-20  | International Conference on Optical and Laser Diagnostics              | City University, London |
| December 17-18  | Photonic Access Technologies Seminar                                   | IEE, London             |
| January 1 2003  | Closing date for the quarters PIPSS calls                              |                         |
| January 27 2003 | Smart Optics Space Forum   | London                  |

## New Faraday Partners since the last newsletter

|   |  |   |
|---|--|---|
| <b>Assistive Technologies UK Ltd:</b> <i>Technology products for the disabled</i> | <b>Laser Optical Engineering Ltd:</b> <i>Advanced laser marking systems manufacturer</i> | <b>Photonics Consultancy:</b> <i>Optical systems consultant</i>                     |
| <b>Cooke Optics Ltd:</b> <i>Precision cine camera lens manufacturer</i>           | <b>MicroEmissive Displays Ltd:</b> <i>Advanced display systems developer</i>             | <b>Police Scientific Development Branch:</b> <i>Police research and development</i> |
| <b>ISG Thermal Systems:</b> <i>Thermal imaging systems manufacturer</i>           | <b>Morganic Metal:</b> <i>Electroforming services</i>                                    | <b>SPIE:</b> <i>Technical conferences and publications</i>                          |
| <b>IVO Associates:</b> <i>'Start-up' business management services</i>             | <b>Nohmia Ltd:</b> <i>Space technology consultant</i>                                    | <b>Valuation Consulting:</b> <i>Early stage funding</i>                             |
| <b>John Topping Consultant:</b> <i>Thermo-chromic surfaces consultant</i>         | <b>Photek Ltd:</b> <i>Advanced detectors and image intensifier manufacturer</i>          | <b>Zeeko Ltd:</b> <i>Advanced optical polishing machine manufacturer</i>            |
| <b>Cambridge University</b>   | <b>Institute of Photonics (Strathclyde)</b>  | <b>Smith Institute Faraday Partnership</b>  |
| <b>City University</b>  | <b>Loughborough University</b>   | <b>Warwick University</b>   |

## Contact Details

For industrial applications & membership enquiries contact:

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