Economic Impact

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Introduction

This paper reviews some of the important economic impact activities for FY14/15. This has been a successful year, with a number of high impact activities. In particular, the ground-breaking experimental run in Vulcan TAW demonstrated the capabilities of Laser Driven Sources for imaging of industrially relevant complex samples and was a great success. The work provides a platform to build a solid case for future funding to fully develop this key area of impact for CLF.

Industry Engagement

The year focused on building relationships with a number of industrial sectors. Meetings and tours of the facilities were conducted throughout the year with companies in aerospace, medical, materials and advanced manufacturing, which have sown the seed for potential new collaborations and projects in the future. Initial discussions with Johnson Matthey Ltd to co-fund a postdoctoral researcher to work in CLF on commercial projects are promising.

I have been invited to give the keynote presentation at the 5th International Conference on Laser Peening to be held in April 2015 in the US. This is a very important application area for our DiPOLE laser platform. The ability to shape laser pulses in both space and time is expected to generate new IP and know-how in this area, opening new exploitation opportunities for DiPOLE across a broad spectrum of industry sectors. Further to visits to CLF, I have also organised, chaired and presented at a number of conferences, workshops and exhibitions throughout the year.

Winning Contracts and External Funding

New contracts with industry have been won this year enabling access to Vulcan and Ultra. This generates additional income and provides industry with the opportunity to access state-of-the-art laser systems to develop their own products, processes and technologies. Also CLF was successful in the Phase 1 bid for funding through the H2020 Widespread and Teaming initiative. Here, funding is allocated for one year to establish a business plan for teaming with the HiLASE facility in the Czech Republic. This project will further our industrial outreach and engagement, whilst providing new opportunities for developing and exploiting CLF technology.

CLF was also successful in three bids to the UK Government's Newton Fund. We have established projects in China, India and South Africa which will run over the next 4-5 years. The projects provide the opportunity to look for new exploitation routes for the DiPOLE technology, in addition to enhancing the impact of our science and technical capability overseas.

CLF continues to work closely with all three ELI pillars and discussions have started for the development (phase 1) and supply of the L2 beamline to ELI-Beamlines in the Czech Republic.

Demonstrating Capability

In March this year we conducted a milestone experiment in Vulcan TAW to demonstrate Laser Driven Sources Imaging of industrially relevant samples. The programme, part funded through STFC BID, engaged companies from Aerospace, Energy, Security and Defence, and Advanced Manufacturing all of whom were actively involved and supplied samples for tests. In addition two new University groups (Bristol and Cambridge) came on board and worked closely together with the University of Strathclyde and Queen's University Belfast.

The outputs from this experimental run will be used to build a robust case for funding to further develop this important activity.

Spin Out Companies

Cobalt Light Systems Ltd has continued to grow and expand its range of products. They have recently won a number of awards including the RAE MacRobert award and the Queen's Award for Enterprise, and recently topped the Sunday Times BT Business SME Export Track 100.

Scitech Precision Ltd combines expertise in micro-assembly and micro-engineering with extensive insight into the physics behind high power laser science. New opportunities exist for high repetition rate target positioning and target supply. Plans to ensure Scitech continues to grow and flourish will be stepped up in 2015.

Intellectual Property and Know-How

The Octopus team filed a new patent in the area of super-resolution molecular imaging this year.
The transmission grating patent filed previously by the Gemini group is under review by patent office examiners at PCT stage. The Microwave VUV project, funded through STFC's Proof of Concept fund, is progressing well now that the new postdoctoral researcher is in place.

Several new ideas are in the early evaluation stage, including a new device for short pulse diagnostics, a novel alignment process for high power laser systems, and new methods for nuclear waste imaging.

Generating impact is an on-going and evolving activity, and in CLF we will continue to grow industrial engagement, build and demonstrate our capability, and drive innovation through our knowledge and ideas.