Femtosecond comb optical parametric oscillators for high-resolution spectroscopy in the mid-infrared

Fact Sheet

Project Information

**METROCOMB**

Grant agreement ID: 605057

Project website

**Status**

Closed project

**Funded under**

FP7-SME

**Overall budget**

€ 1 955 360

**EU contribution**

€ 1 499 000

**Coordinated by**

M-SQUARED LASERS LIMITED

United Kingdom

Start date

End date 31 July 2015

1 August 2013

Objective

The research necessary to extend the application areas of femtosecond frequency combs through the development of compact, robust, low-cost, commercially-exploitable sources is now possible; taking advantage of the fact that ultrafast laser pulses of femtosecond widths, separated by nanoseconds, manifest themselves as a phase-coherent comb of frequencies spread over a wide spectral band. Furthermore, the development of femtosecond frequency combs in the infrared region of the electromagnetic spectrum and beyond offers enormous opportunities for exploitation in broad spectrum detection and metrology. Robust industrial laser sources such as those produced by the SME supply chain grouping brought together in this proposal can be used by the leading research groups in this consortium to develop frequency comb based spectroscopy systems offering unprecedented detection sensitivity and
measurement accuracy. Moreover, if the wavelength range of the comb sources can be extended to cover the mid-IR region then such a source would be ideal for coherent Fourier-transform spectroscopy in the absorption-rich mid-IR 'molecular fingerprint' region delivering real-time acquisition of molecular spectra and real-time imaging with chemical identification for applications in large fast-growing global markets including environmental monitoring, real-time analysis of chemical /bio threats and explosives, trace molecular detection, and medical breath analysis. The project will be led by the SME group coordinated by M-Squared Lasers and produce IP which can be exploited across the supply chain covering optics, crystals, lasers and OPOs.

Field of science

/social sciences/economics and business/business and management/commerce
/natural sciences/chemical sciences/analytical chemistry/spectroscopy
/natural sciences/physical sciences/optics
/engineering and technology/materials engineering/crystals
/natural sciences/physical sciences/optics/laser physics

Programme(s)

Topic(s)

Call for proposal

FP7-SME-2013

Funding Scheme

BSG-SME - Research for SMEs

Coordinator

M-SQUARED LASERS LIMITED

Address
Venture Building 1 Kelvin Campus Maryhill Road West Of Scotland Science Park

Activity type
Private for-profit entities (excluding Higher or Secondary Education Establishments)

EU contribution
€ 587 415,55
Participants (7)

LO LASEROPTIK GMBH
Germany
EU contribution
€ 229 486,25
Address
Horster Strasse 20
30826 Garbsen
Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)
Website
Contact the organisation
Administrative Contact
Wolfgang Ebert (Dr.)

LASER QUANTUM GMBH
Germany
EU contribution
€ 216 404,50
Address
Max Stromeyer Strasse 116
78467 Konstanz
Activity type
Private for-profit entities
(excluding Higher or Secondary Education Establishments)
Website
Contact the organisation
Administrative Contact
Albrecht Bartels (Dr.)

Raicol Crystals Ltd.
Israel
EU contribution
€ 114 888,25
<table>
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<tr>
<th>Organisation</th>
<th>Country</th>
<th>EU Contribution</th>
<th>Address</th>
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<tr>
<td>RADIANT LIGHT SL</td>
<td>Spain</td>
<td>€ 330 763,65</td>
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<tr>
<td>HERIOT-WATT UNIVERSITY</td>
<td>United Kingdom</td>
<td>€ 20 041,80</td>
<td>Riccarton, EH14 4AS Edinburgh</td>
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<tr>
<td>UNIVERSITE DE NEUCHATEL</td>
<td>Switzerland</td>
<td>N/A</td>
<td>Faubourg De L'hopital 41, 2000 Neuchatel</td>
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</tbody>
</table>
FRAUNHOFER UK RESEARCH LIMITED

United Kingdom

Address
Cathedral Street - University
Of Strathclyde 347
G1 2TB Glasgow

Activity type
Research Organisations

Contact the organisation

Administrative Contact
Johnmark Hopkins (Prof.)

Last update: 26 April 2016
Record number: 109483

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