iCspec

Project ID: 636930

Funded under:

H2020-EU.2.1.5.3. - Sustainable, resource-efficient and low-carbon technologies in energy-intensive process industries

in-line Cascade laser spectrometer for process control

From 2015-04-01 to 2018-03-31, closed project | iCspec Website

Project details

<table>
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<th>Total cost:</th>
<th>Topic(s):</th>
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<tr>
<td>EUR 5 587 935</td>
<td>SPIRE-01-2014 - Integrated Process Control</td>
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<th>EU contribution:</th>
<th>Call for proposal:</th>
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<tr>
<td>EUR 5 587 932</td>
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<th>Coordinated in:</th>
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<td>Germany</td>
<td>RIA - Research and Innovation action</td>
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Objective

Real-time measurements of multi-components in process streams respond to long demanded industry requirements of fast, accurate, reliable and economical process analyzers. The rise of such -yet unavailable- systems will lead to a paradigm change throughout the process control and production chain. Significant cost savings from the Total-Cost-of-Ownership to improved process efficiency will result. We focus on the development of compact, robust and maintenance-free sensors for fast in-line multi-species chemical composition measurements for process analytics of many technically relevant gases such as hydrocarbons. The projected sensors will replace state-of-the-art systems of elevated cost and pollution. We will extend established laser-based in-line gas sensing to the mid-infrared “chemical fingerprint” spectral range for multi-species detection. The developments base upon two key technologies: (1) The integration of mid-IR laser arrays and (2) the advancement of spectroscopic and chemometric data evaluation. Tasks performed today with extractive systems with a delayed response of several minutes will become available within seconds and negligible delay. Demonstrators will be integrated in the control loop of a petro-chemical plant allowing significant improvements as optimized product quality, minimized waste and thus less environmental pollution and increased safety in cases where hazardous conditions have to be detected without delay.

The consortium represents the whole value added chain with major players in the field of mid-IR laser sources and their integration (nanoplus, III-V Lab), as well as a major player in the field of process analyzing equipment (Siemens AG). The contributions of scientifically established universities and institutes (CEA Leti, Universität Würzburg and Politechnika Wrocławska) and one SME (Airoptic) complete together with a prominent representative of the petrochemical industry (PREEM AB) as end user the consortium.

Related information

Report Summaries
Periodic Reporting for period 2 - iCspec (in-line Cascade laser spectrometer for process control)
Coordinator

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EU contribution: EUR 1 293 547

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

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EU contribution: EUR 558 875

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Activity type: Higher or Secondary Education Establishments

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EU contribution: EUR 776 483

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

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EU contribution: EUR 350 972

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Activity type: Higher or Secondary Education Establishments

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EU contribution: EUR 0

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