

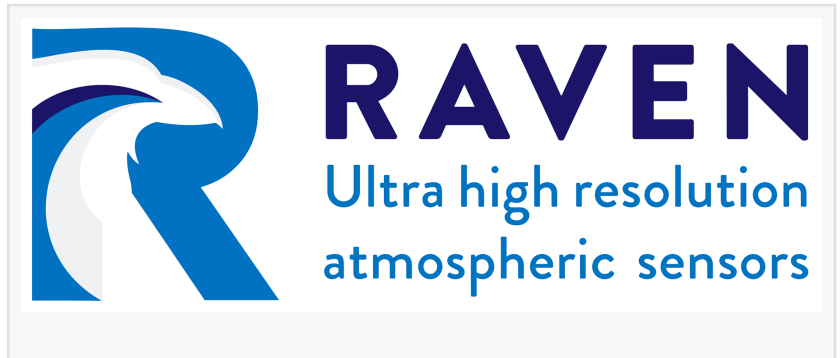
European Research Project to Develop Innovative Sensing Technology for Improved Air Pollution and GHG Monitoring

RAVEN - A New Initiative to Develop Compact and Low-Cost Gas Sensing Systems to Meet the European Green Deal Objectives

BRUSSELS, BELGIUM, October 8, 2024

/EINPresswire.com/ -- This summer, a multidisciplinary team of European researchers launched RAVEN, a

groundbreaking four-year research program aimed at developing the next generation of compact air pollution and greenhouse gas monitoring systems. This initiative is designed to support the EU Zero Pollution for Air, Water, and Soil Action Plan, a key component of the European Green Deal.



RAVEN sensors will measure various pollutants and greenhouse gases such as CO₂, CO, O₃, CH₄, N₂O, CH₃OH, NH₃, and NO₂ with high sensitivity, detecting amounts as low as 1-25 parts per billion (ppb). The sensors will incorporate cutting-edge technologies, including a high-power compact dual-supercontinuum light source on a chip and on-chip data analysis inspired by quantum computing. This will enhance their ability to detect and differentiate between gases, meeting the stringent requirements for performance, power consumption, size, and cost.

RAVEN sensors will be capable of operating independently, providing flexibility in terms of cost and analysis functions to meet diverse end-user needs. They can be deployed in situ and on-demand in remote locations, enabled by innovative data acquisition, processing, and interpretation techniques that allow for low energy consumption and operation without mains power. When combined into a single integrated system, RAVEN sensors will offer unparalleled multi-sensing capabilities and high performance from a universally applicable system.

RAVEN leverages expertise from various fields—material science, microfluidics, data processing, and micro- and nano-fabrication—to deliver a versatile, high-performance sensing solution in a compact, widely applicable system. This technology will offer high-level sensitivity, precision, and accuracy for quantifying GHG emissions and monitoring air pollutants at ppb-level concentrations, meeting the strictest air quality standards. Additionally, the sensors will be

capable of measuring air pollutant concentrations at water surfaces, enabling the detection of accidental spills and hazardous substances (HNS) releases at sea. They will also measure dissolved GHG concentrations in seawater, helping assess climate change impacts on the marine environment and estimate GHG sources and sinks for future climate projections.

As part of the project, the two sensors will undergo validation with end users to ensure they meet requirements for performance, power consumption, size, and cost. Three applications will be tested in the laboratory under conditions that simulate real-world environments:

1. GHG monitoring in terrestrial settings.
2. Quantification of dissolved CH₄ for applications such as monitoring offshore pipeline leaks or assessing climate change impacts.
3. Monitoring of CH₄, CH₃OH, and NH₃ at the water surface level to evaluate accidental spills of HNS at sea.

For further details and to follow the project's progress, please visit RAVEN's website at www.raven-sensors.eu.

CONSORTIUM AND FUNDING:

RAVEN has received €4.8 million in funding from the European Union's Horizon Europe Framework Programme under grant agreement No 101135787. UK participants are supported by UKRI grant number 10120523.

Coordinated by the University of Eastern Finland, RAVEN consortium includes members from (in alphabetical order):

- Finland (Brighterwave Oy, Gasera, Picophotonics, Tampere University, University of Eastern Finland, Finnish Meteorological Institute)
- France (A2 Photonic Sensors, Cedre, INP Grenoble, Université Jean Monnet Saint-Etienne, Teem Photonics S.A.)
- Italy (Politecnico di Torino)
- Poland (Uniwersytet Gdanski, VIGO Photonics S.A.)
- Spain (CIC nanoGUNE)
- UK (MODUS Research and Innovation)

Izabella Otalega
MODUS Research and Innovation
[email us here](#)

This press release can be viewed online at: <https://www.einpresswire.com/article/749934558>

EIN Presswire's priority is source transparency. We do not allow opaque clients, and our editors try to be careful about weeding out false and misleading content. As a user, if you see something

we have missed, please do bring it to our attention. Your help is welcome. EIN Presswire, Everyone's Internet News Presswire™, tries to define some of the boundaries that are reasonable in today's world. Please see our Editorial Guidelines for more information.

© 1995-2024 Newsmatics Inc. All Right Reserved.