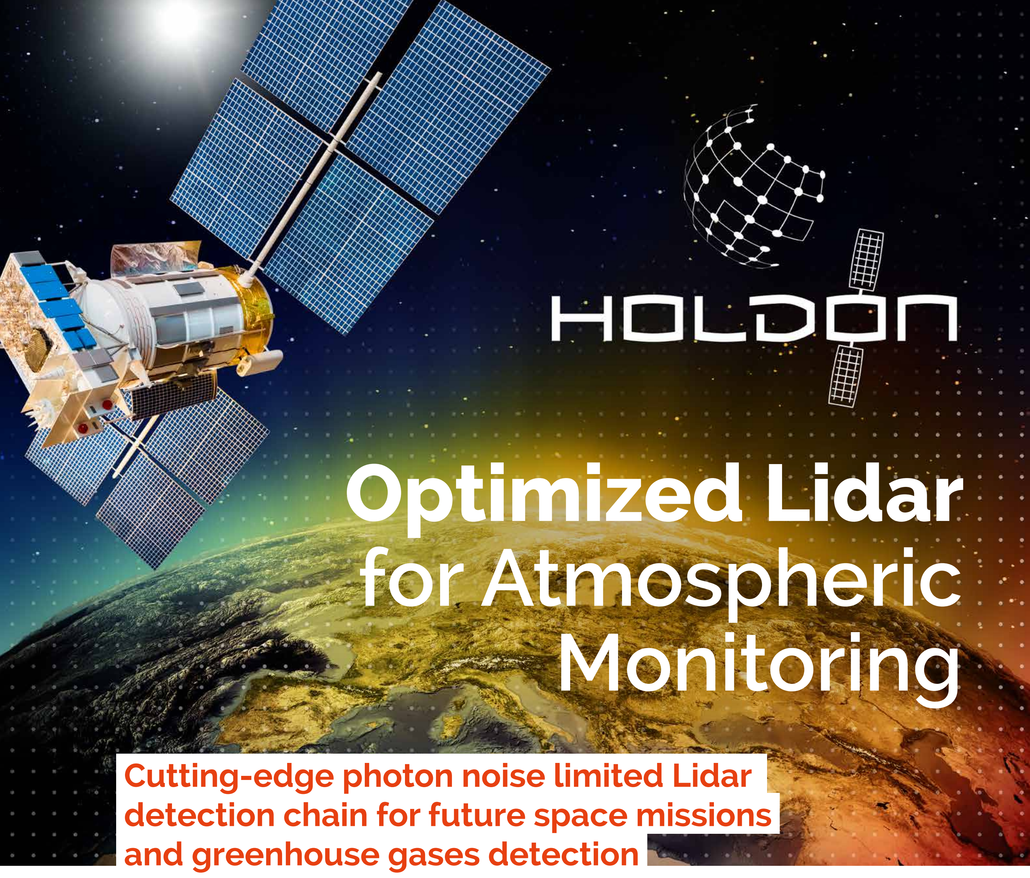

HOLDON

Optimized Lidar for Atmospheric Monitoring

Cutting-edge photon noise limited Lidar detection chain for future space missions and greenhouse gases detection

Lidar remote sensing of the earth's atmosphere is one of the main challenges in coping with the effects and causes of global warming caused by the emission of greenhouse gases. The name lidar is the acronym of light imaging, detection, and ranging. It is a surveying method that measures distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor. The main objective of HOLDON project is to develop a new detection chain which will improve the performance of the Lidars on large platforms and/or reduce the Lidar payload to be integrated in the future micro and mini-satellites. The performance increase is obtained by the optimization of HgCdTe avalanche photodiodes that will be hybridized to a CMOS Readout Circuit providing two operation modes and designed to meet the most demanding requirements for Lidar applications in terms of sensitivity, dynamic range and temporal resolution.

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www.holdon-h2020.eu

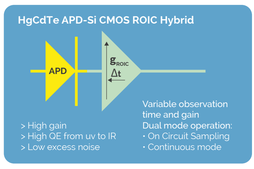
4 EU COUNTRIES / 3 RESEARCH AND TECHNOLOGY ORGANISATIONS (RTOs) / 2 INDUSTRIES 2 SMEs

HOLDON CONCEPT

HOLDON Detection Module

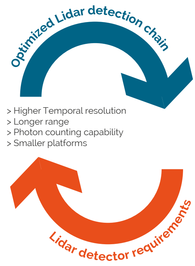
- Versatile
- High dynamic range
- Single photon sensitivity

HgCdTe APD-Si CMOS ROIC Hybrid



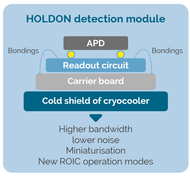
> High gain
> High QE from uv to IR
> Low excess noise

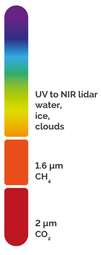
Variable observation time and gain
Dual mode operation:
- On Circuit Sampling
- Continuous mode



Holdon atmospheric Lidar demonstrations

- Aerosols
- Wind
- Greenhouse gases





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