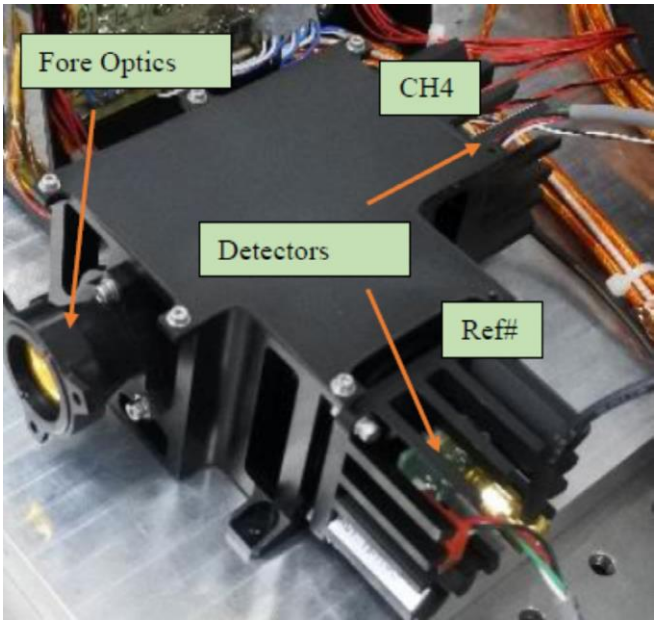
Miniaturized Methane Sensor Based on Grin Lens

Space Applications Centre (SAC) has developed a miniaturized methane sensor using GRIN lens and small etalons is developed which is well capable to measure Earth methane and to fly on airborne platform to map Earth's methane. This is a first of its kind of sensor based on GRIN lens. The lens is 1.8 mm clear aperture and 4.54 mm of length. The collecting lens was chosen such that the spot size is lesser than the clear aperture of the GRIN lens so that the entire energy can be coupled with the GRIN lens. The sensor can be flown from spaceborne platform (for Earth's Methane observation) with proper qualification and modification in electronics and including necessary interfaces.

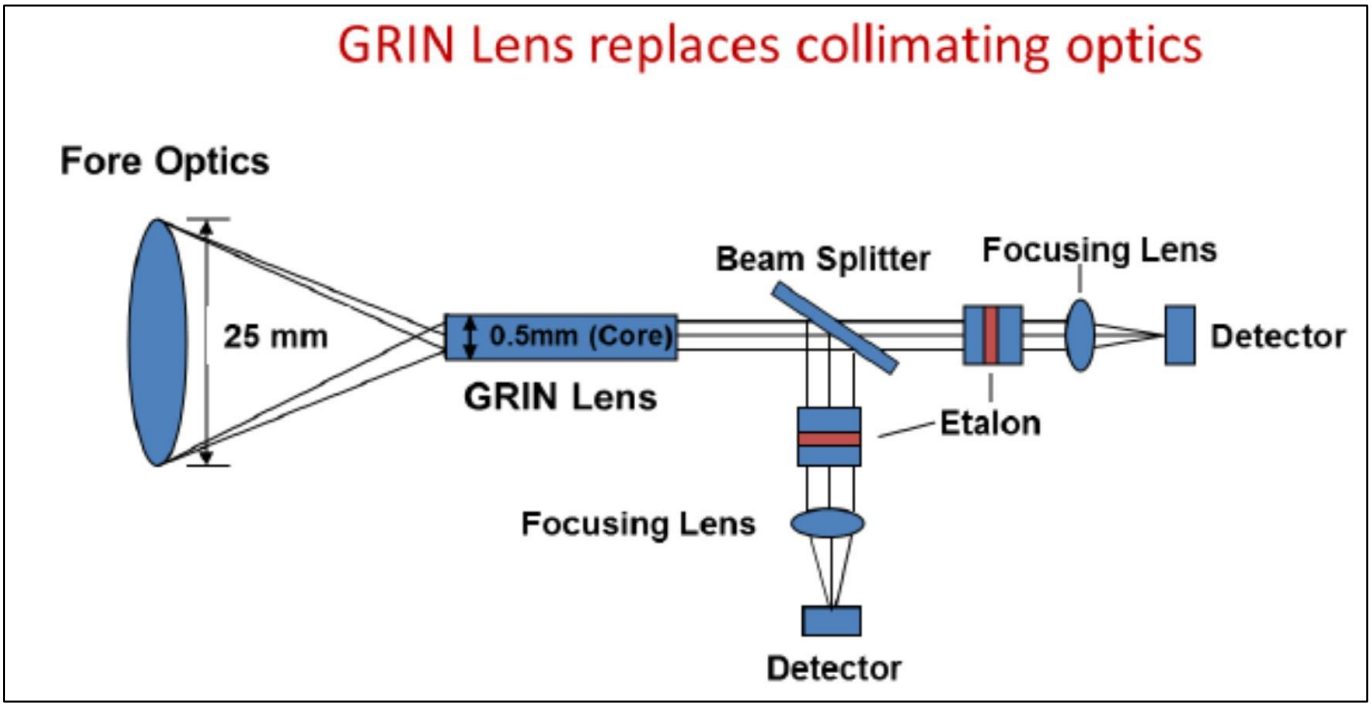


Applications area :

The potential application areas are Industries, agricultural department/universities, dairy research, paddy cultivation, Livestock, Environmental science departments. The payload is primarily designed for airborne platform. The performance achieved is suitable to use it for airborne measurement. The weight and power of the instrument is also suitable for nanosatellite.

Salient Features:

Parameters	Values
Detector Type	InGaAs, Single Pixel detector, One for each Channel
Detector size	1 mm
Fore optics diameter	24.5 mm
Focal length	25.4 mm
IFOV	39.3 mrad
Responsivity	1 A/W
Targeted Methane concentration measurement and SD	1800 ppb of Earth's atmospheric column with SD ~100 ppb.



Technology Transfer from ISRO

ISRO is willing to offer the knowhow of this technology to suitable entrepreneurs / industries in India. Capable manufacturing industries interested in acquiring this knowhow may write with details of their present activities, requirements and plans for implementation, infrastructure and technical expertise available with them, their own market assessment, if any, and plans for diversification to the address given below: