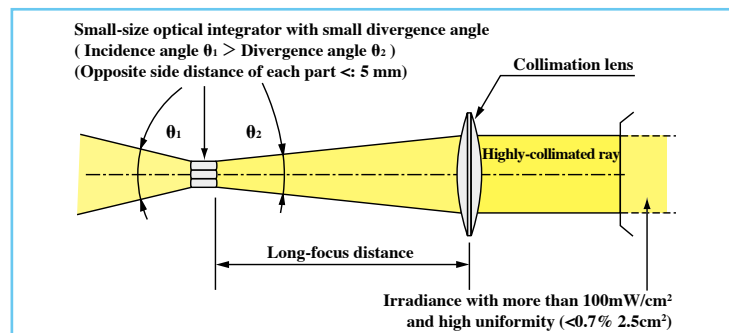


## A highly-collimated solar simulator for photovoltaics calibration

The Research Center for Photovoltaics investigates calibration and evaluation method of photovoltaics (PV). In the field of calibration, we contribute to a sound spread and promotion of PV as the top of traceability through calibration of a reference cell that is a transferred standard of the traceability. The calibration value is utilized as the key comparison reference value of World PV Scale. We have developed a new calibration system for a primary reference cell which was composed of a highly-collimated solar simulator, a wide-band spectroradiometer and a spectral responsivity measurement equipment, etc. The ray parallelism of the simulator is less than 1.2 degree in double angle. Thus we have achieved the direct traceability to the World Radiometric Reference (solar irradiance scale) on indoor calibration by the simulator and an absolute cavity radiometer.

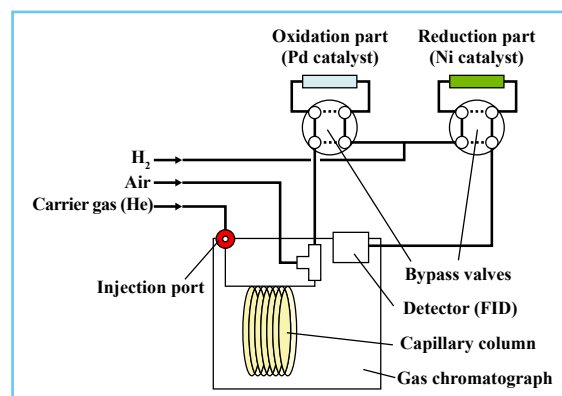


Principle of optical system of highly-collimated solar simulator

### Metrology and Measurement Technology

## Development of a precise method for the quantitative analysis of volatile organic compounds

We developed an analytical method attaining SI-traceability for various volatile organic compounds using only one calibration material (reference material). An apparatus was designed and made in which analytes are converted to methane for detection. Test sample gases were prepared by the precise gravimetric method and used for the evaluation of our analytical method. The results showed that the analytes in the sample gases were converted to methane stoichiometrically and the analytical values showed good consistency to the gravimetric values.



Schematic diagram of the designed apparatus

**Sanekazu Igari**  
Research Center for  
Photovoltaics  
sanekazu.igari@aist.go.jp

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**Takuro Watanabe**  
Metrology Institute of Japan  
watanabe-takuro@aist.go.jp

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