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GROUP

DEVELOPMENT OF A NEW DIODE LASER BASED TRACE GAS SENSOR

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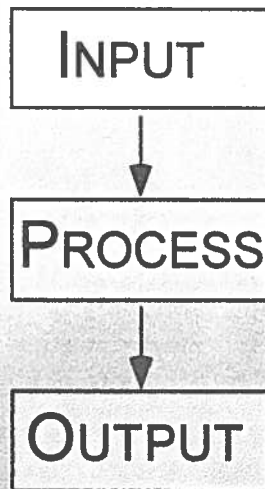
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OUTLINE

- BACKGROUND
- STATUS OF CURRENT SENSOR TECHNOLOGY
- FUTURE PROSPECTS

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TECHNOLOGIES :



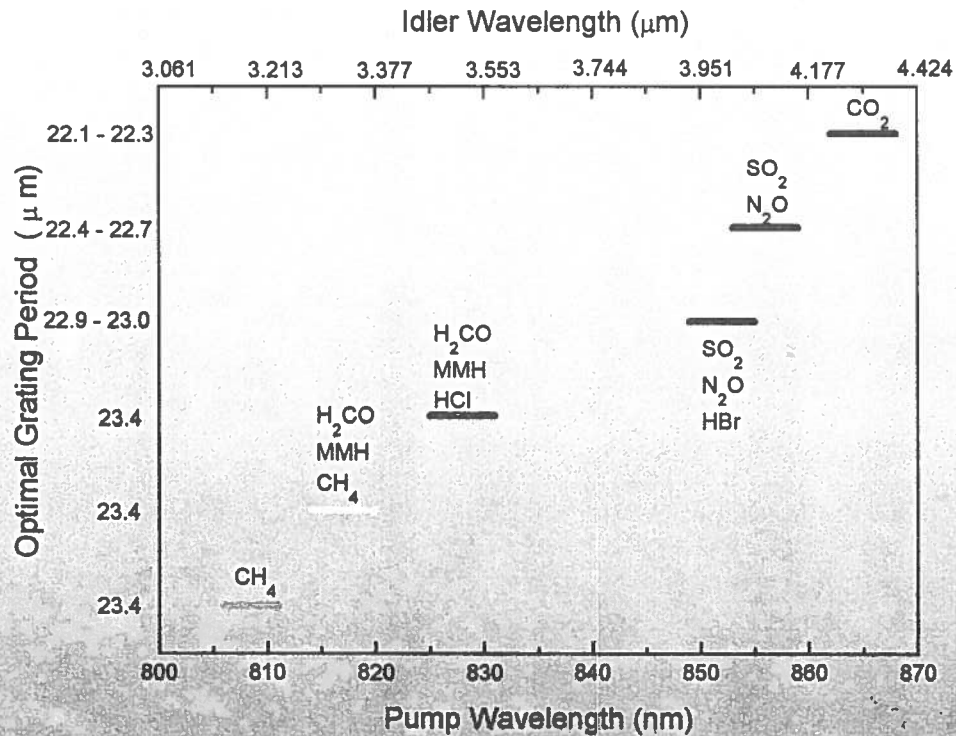
- SINGLE FREQUENCY DIODE LASER
- NONLINEAR OPTICAL MATERIAL

- ABSORPTION SPECTROSCOPY

- DATA ACQUISITION / ANALYSIS

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Scenario of Laser Diode Combinations and Accessible Trace Gas Species

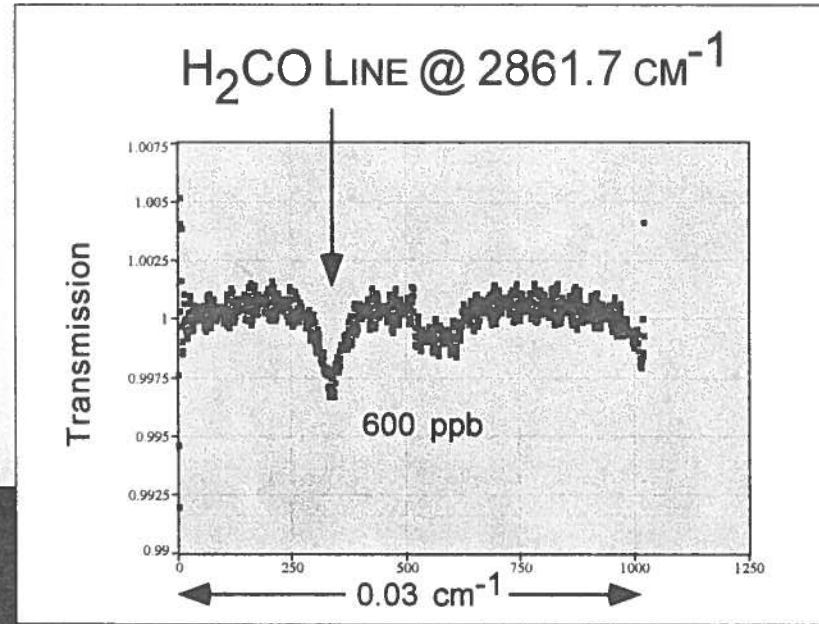
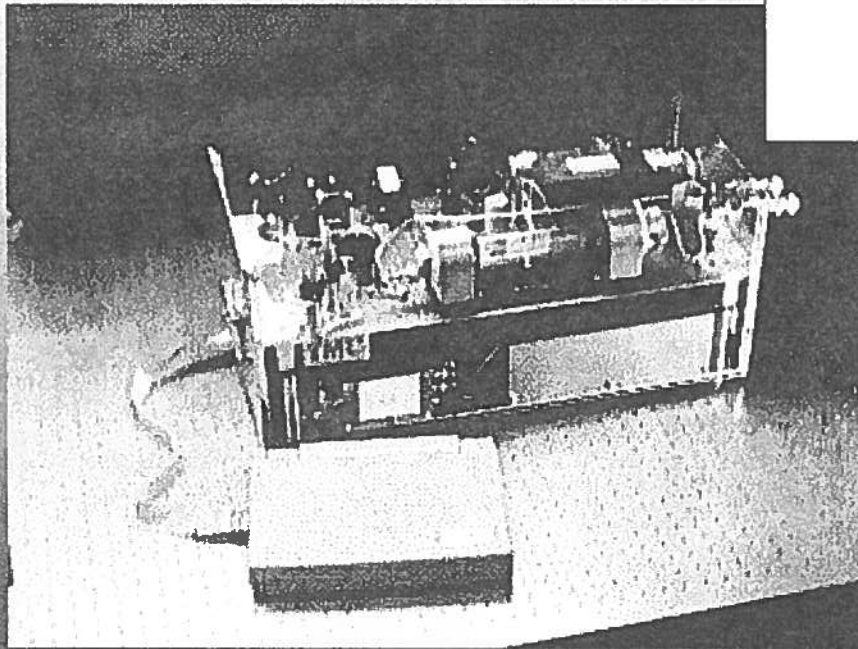


Laser Diodes: SDL 6702-H1, P=50mW, 1083nm (quasi-fixed wavelength)
 SDL-5412-H1, P=100mW, Tunable, Center Wavelength as indicated

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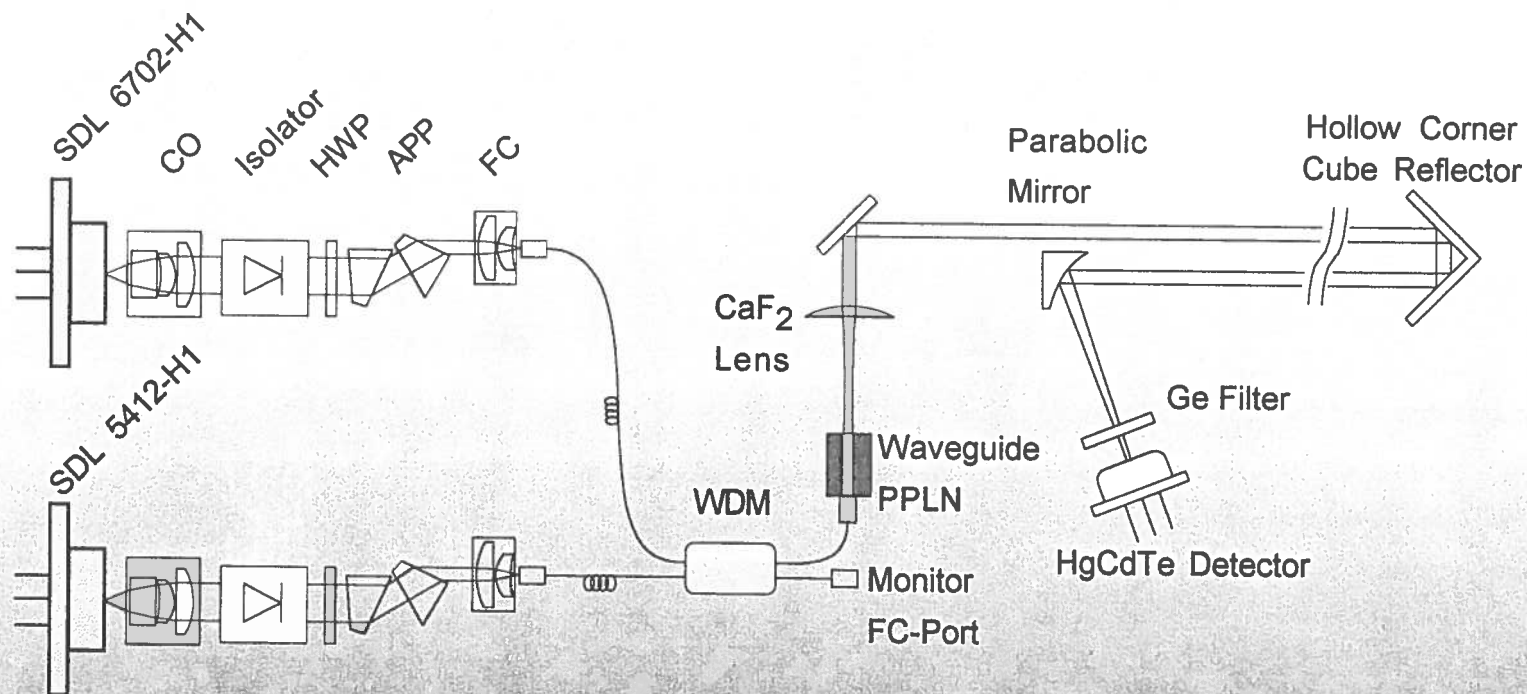
CO AND H₂CO PROTOTYPE SENSOR



IN COLLABORATION WITH
NASA
JOHNSON SPACE CENTER

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Future Outlook

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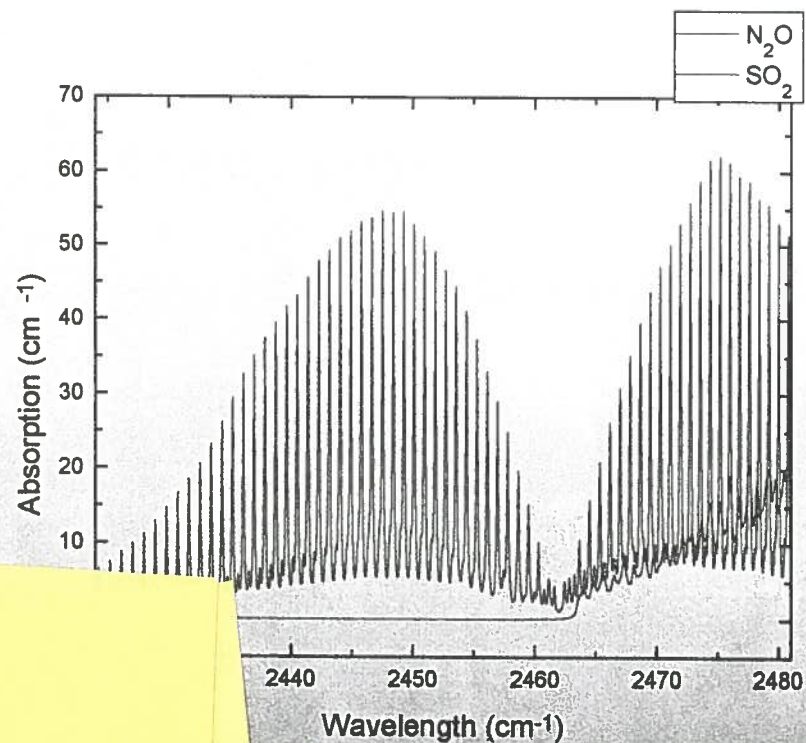
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TARGET GAS:

- NITROUS OXIDE (N_2O)
- SULFUR DIOXIDE (SO_2)

APPLICATIONS:

- MONITORING ENVIRONMENTALLY
IMPORTANT TRACE GASES
- ATMOSPHERIC CHEMISTRY
- VOLCANIC ACTIVITIES
- PAPER MILLS



INFRARED SPECTRA (HITRAN)

DEVELOPMENT OF A NEW DIODE LASER BASED TRACE GAS SENSOR

- Features:***
- Compact
 - High Sensitivity
 - High Selectivity (Tunable)
 - Fast Data Acquisition and Analysis
 - Room Temperature
 - Lightweight
 - Robust
 - Power Efficient
 - No Consumables
 - Cost Effective