Development of a Portable Near Infrared Spectrometer

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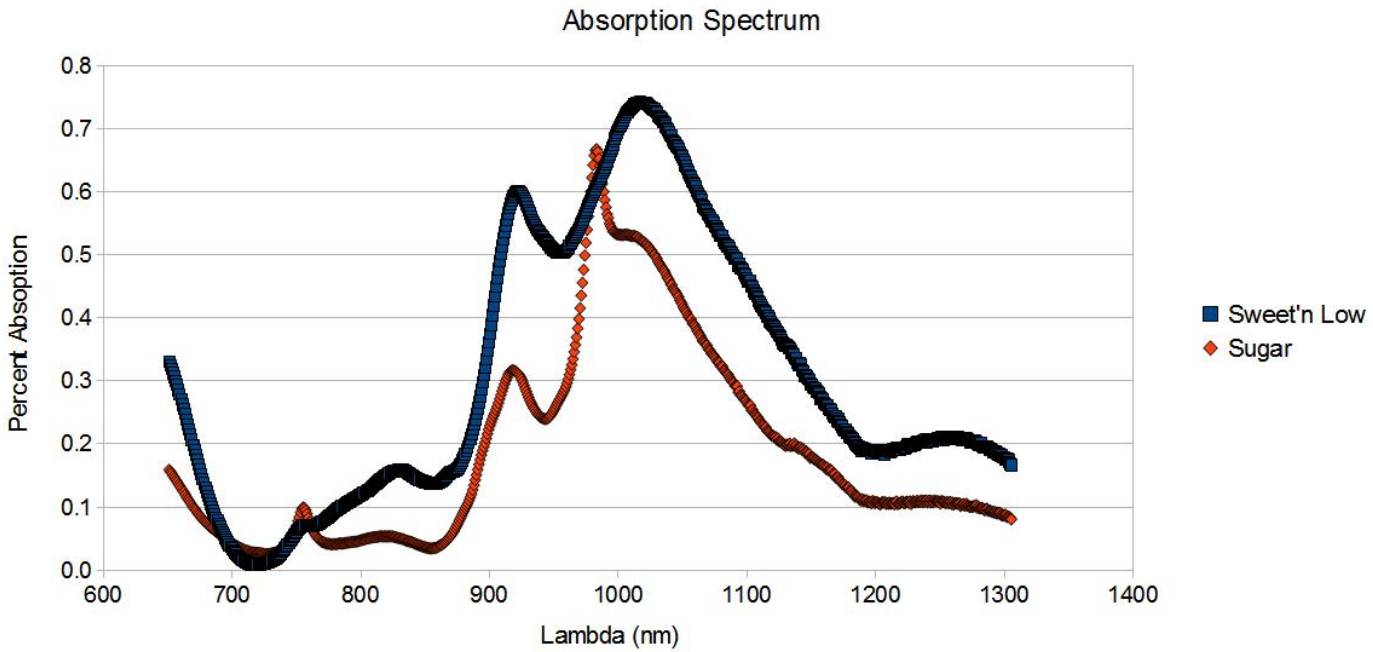
What is Near Infrared

- Comprises the Wavelengths from 700nm-1400nm

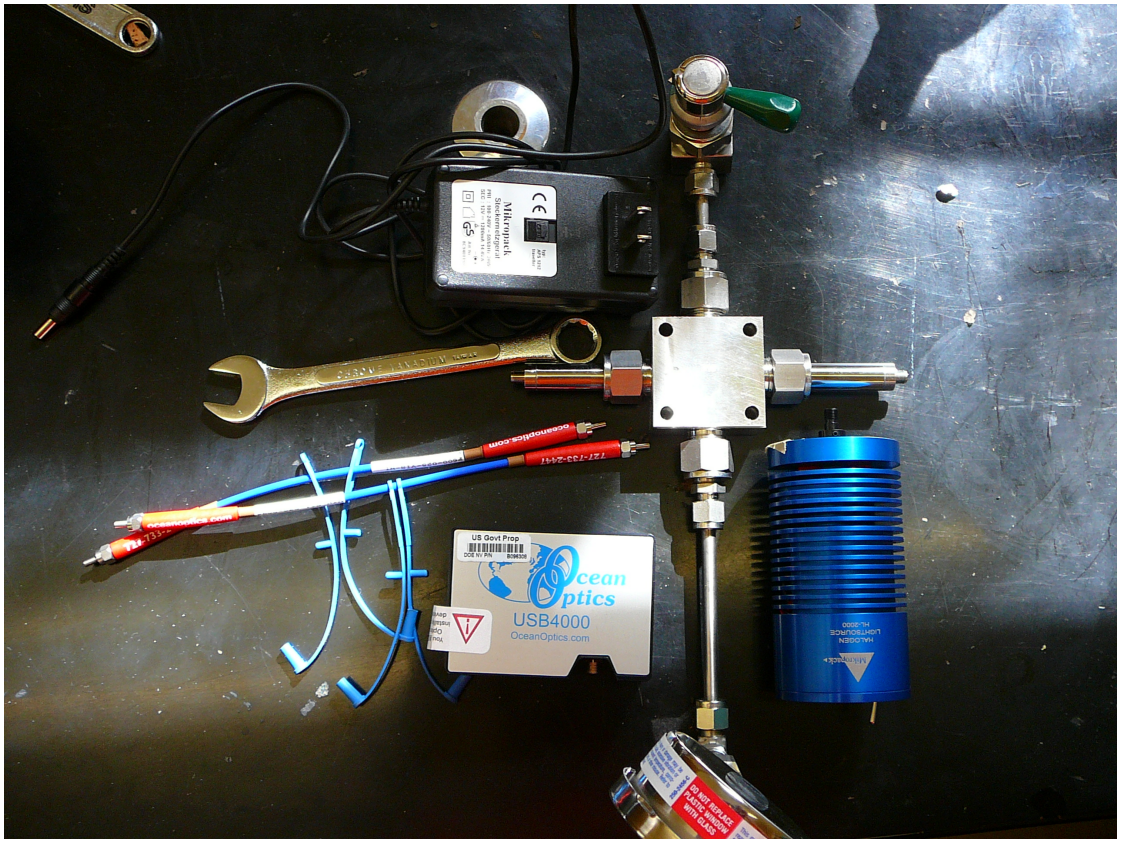
What is Near Infrared

- Comprises the Wavelengths from 700nm-1400nm
- Ideal for use with unprepared samples and is becoming an integral part in many field testing scenarios
  - Used in the food industry, medicine, and is beginning to be used in law enforcement



Setup

- Spectrometer, Gas Chamber, and Light Source



Design Hurdles

- Acquiring Necessary Equipment

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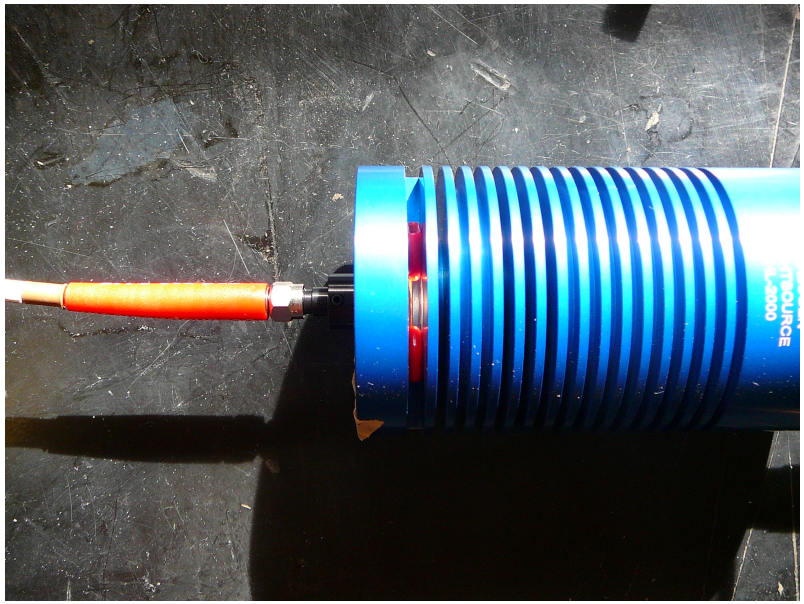
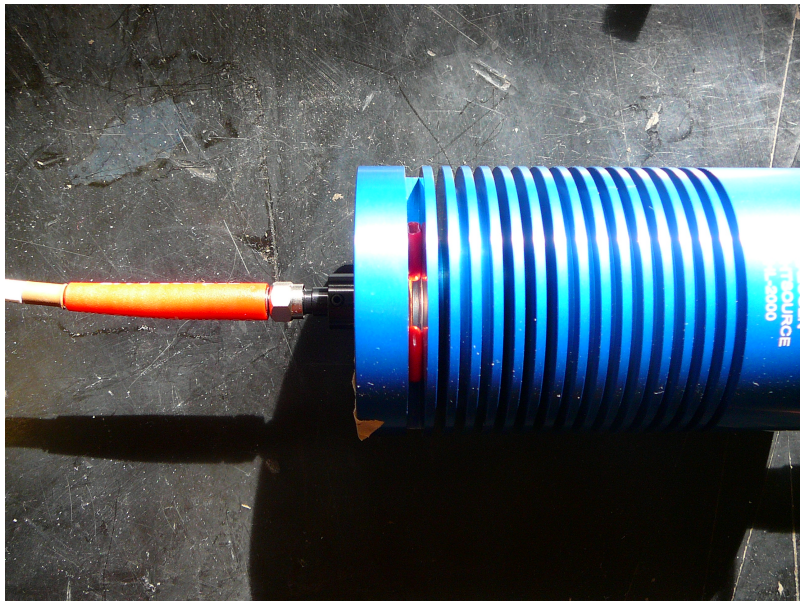
- Light Source Attenuation

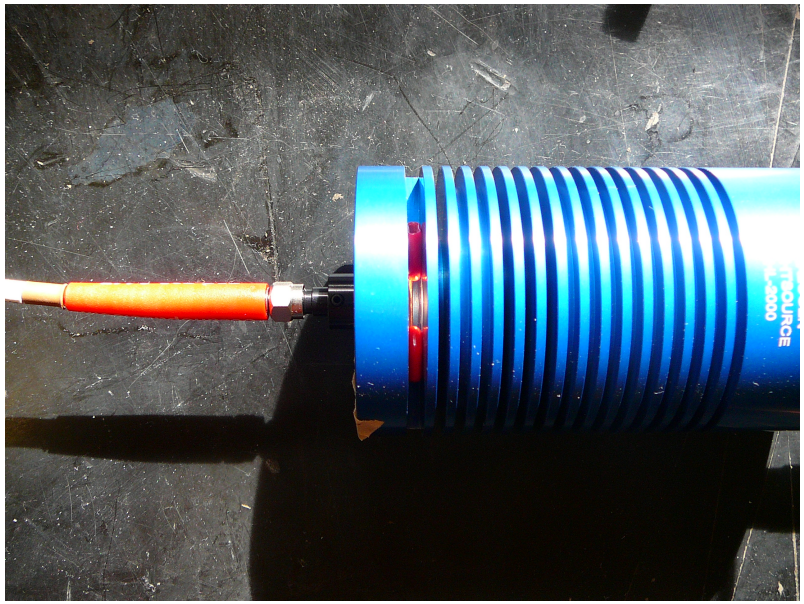


Design Hurdles

- Acquiring Necessary Equipment
- Light Source Attenuation
  - Paper Blocker

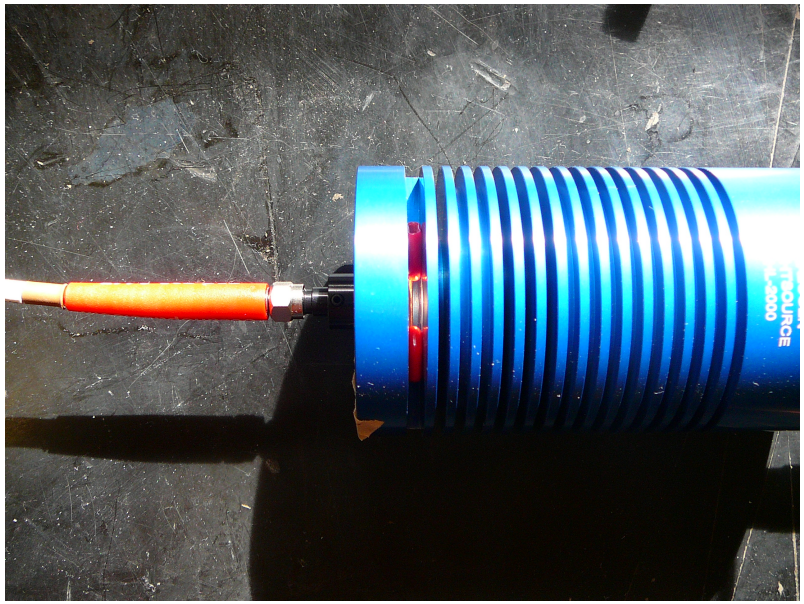


Design Hurdles

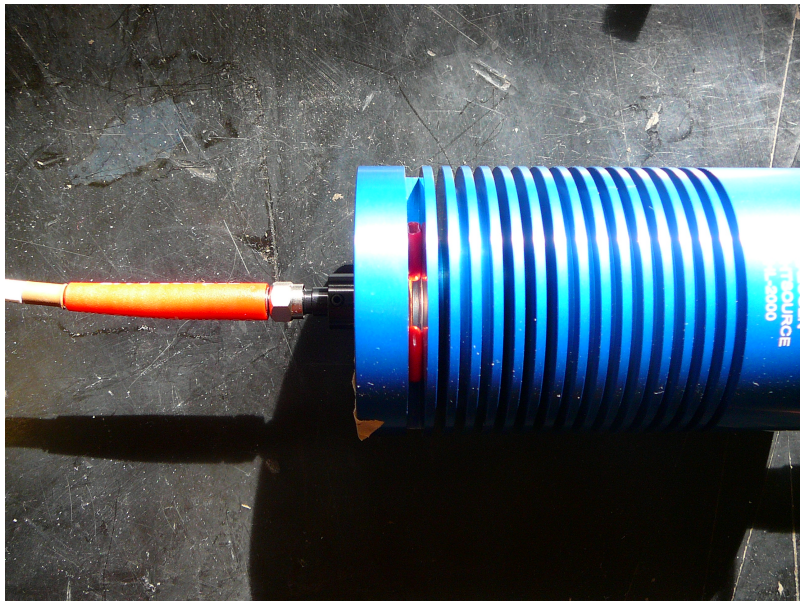
- Acquiring Necessary Equipment
- Light Source Attenuation
  - Paper Blocker
  - Mechanical
- 

Design Hurdles

- Acquiring Necessary Equipment
- Light Source Attenuation
  - Paper Blocker
  - Mechanical
  - Polarizing Filters

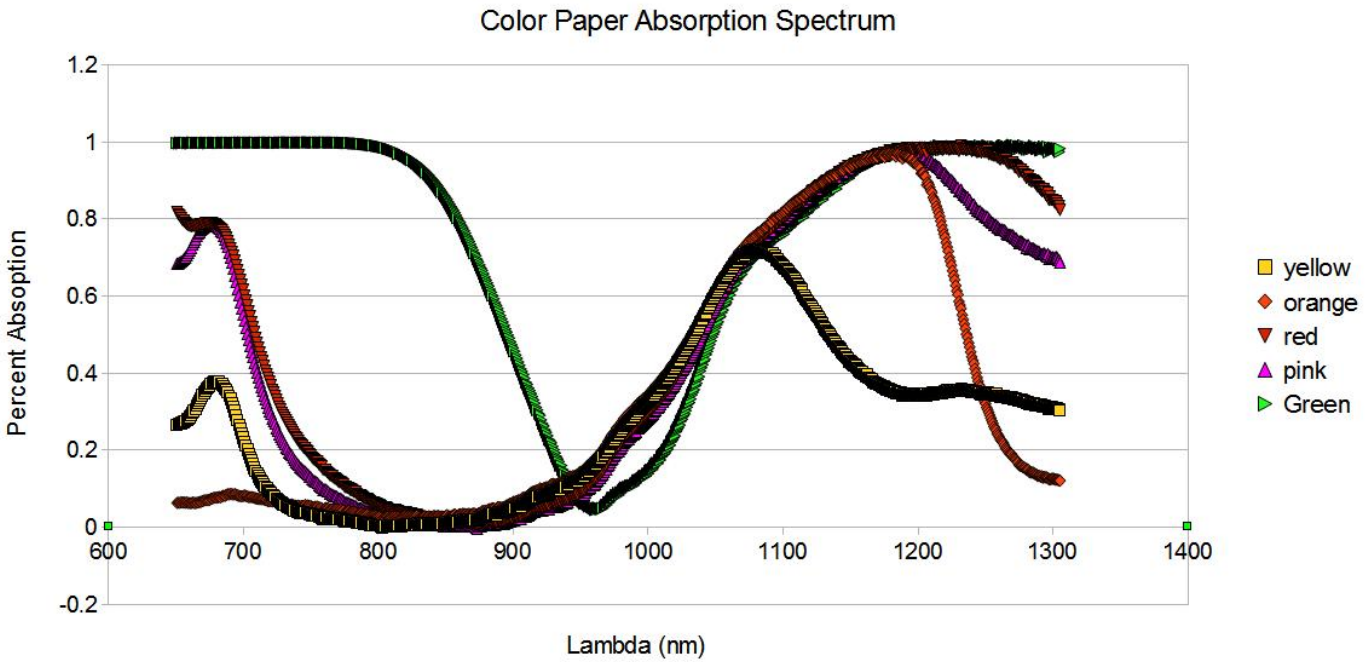


Design Hurdles

- Acquiring Necessary Equipment
- Light Source Attenuation
  - Paper Blocker
  - Mechanical
  - Polarizing Filters
  - Neutral Density Filters
- 

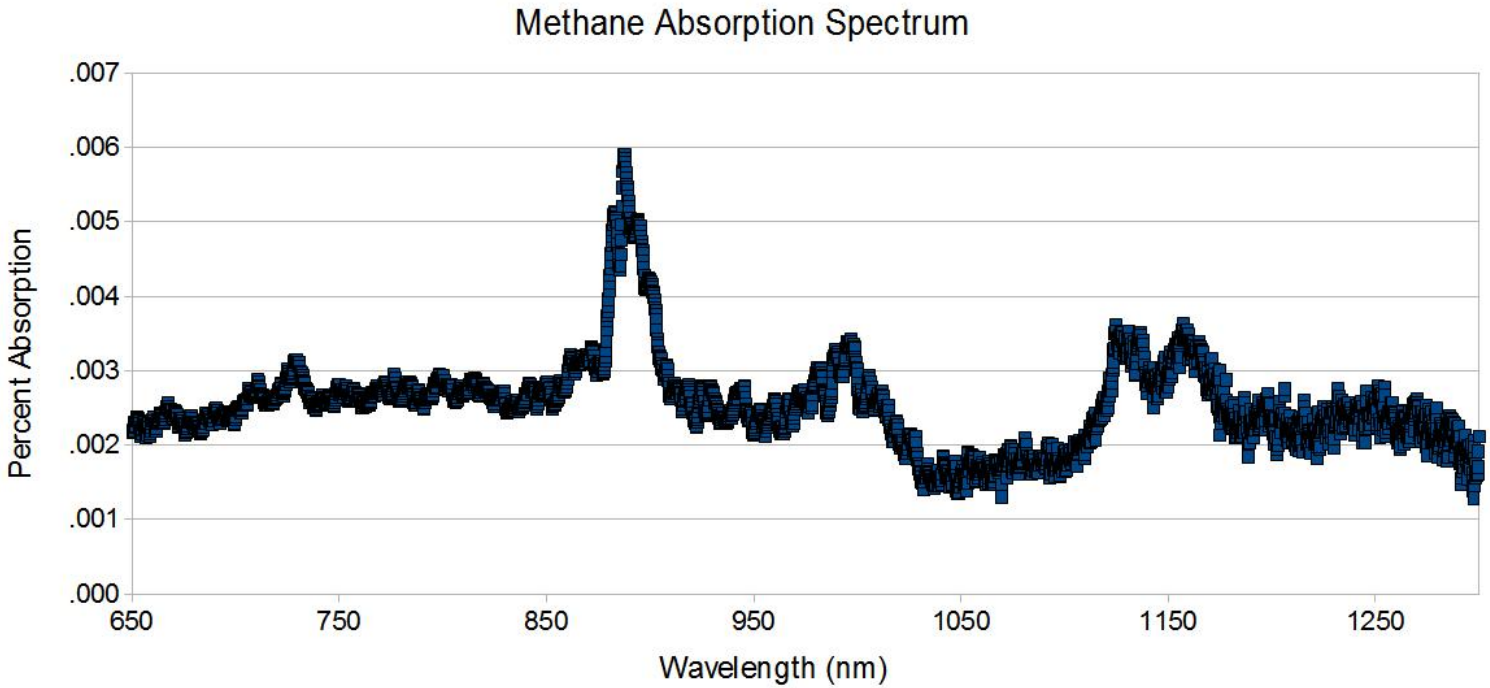
Development of Experimental Techniques

- Initial Spectrum Tests on solids

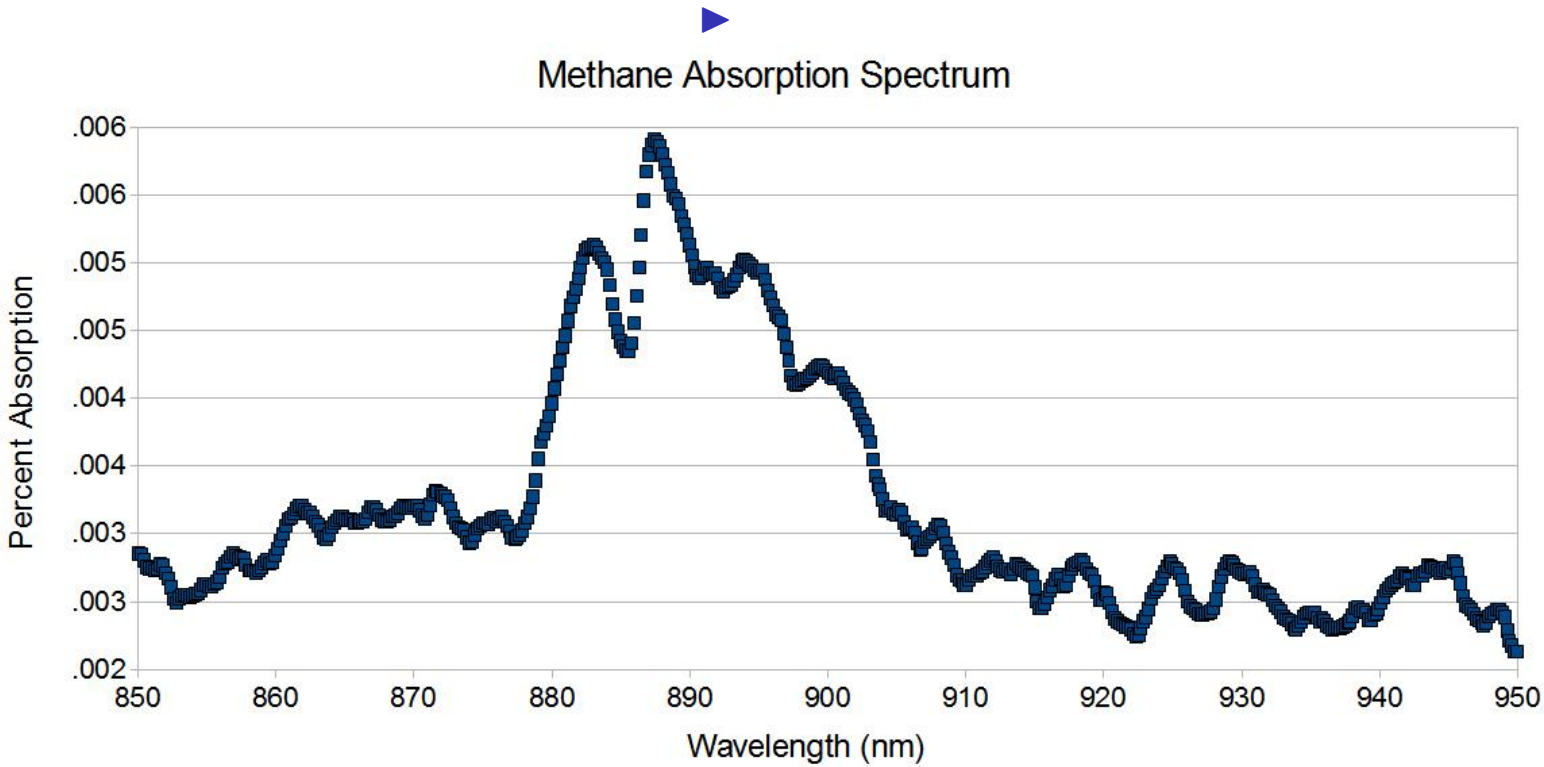


First Usable Spectrum

- Integration and Averaging



First Usable Spectrum Continued



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