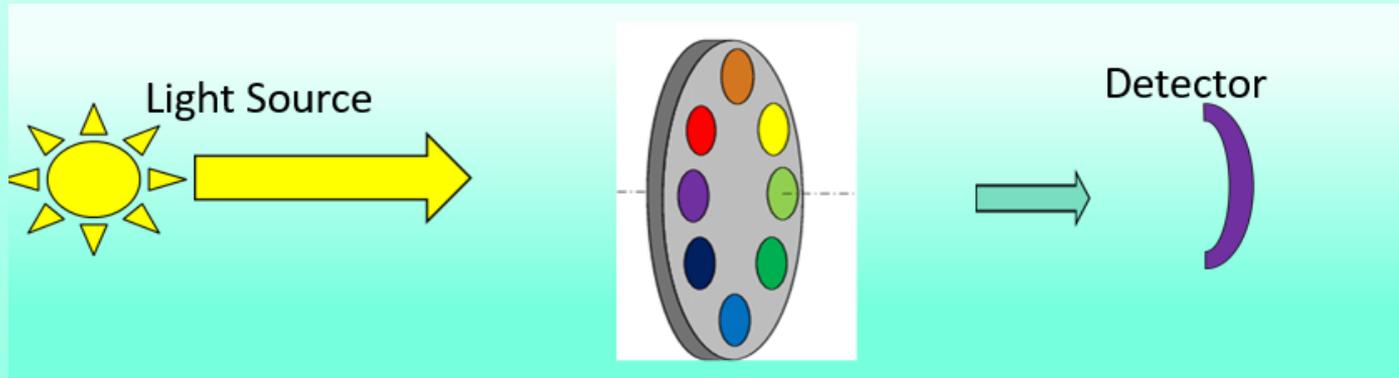


Some Facts about Vortex

- Based in Hinckley UK, started 2009
- Successful profitable SME
- 1-5um IR filters are our ‘bread and butter’
- EPIC member for 7 years.



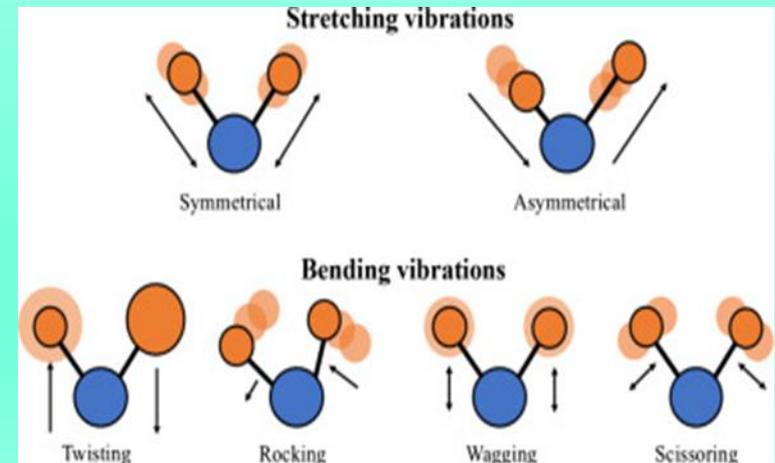
The Space we work in..... 1 to 5 μm



The Filters

Why ?

- Many materials have IR absorption
- Lots of signal...aiming to hit a big target



Materials that can be detected/differentiated in the IR

- Most gases, CO₂, Hydrocarbons
- Fats, proteins, water
- Disease biomarkers
- Plastics
- Adulterated/contaminated foods
- Ripeness of crops/fruit

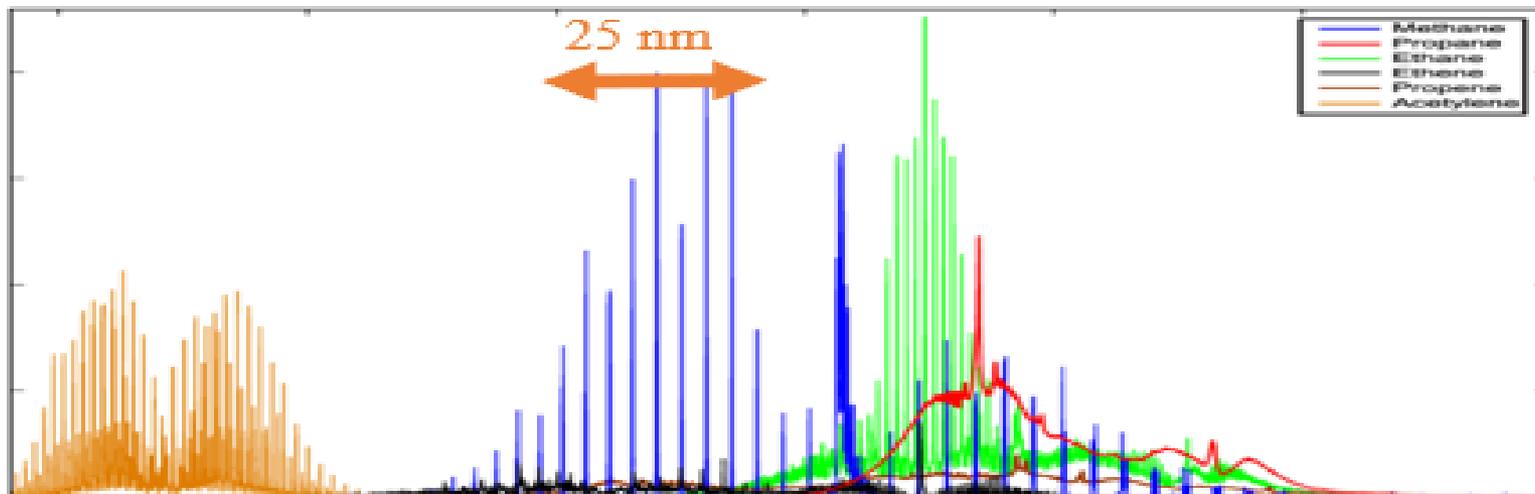
Any material where there are differences in reflection/transmission

What the filter actually does ?

...It ‘hugs’ the area of difference.

Example.

Differentiation of Hydrocarbons in MID IR, expanded scale



3.2 μm

3.4 μm

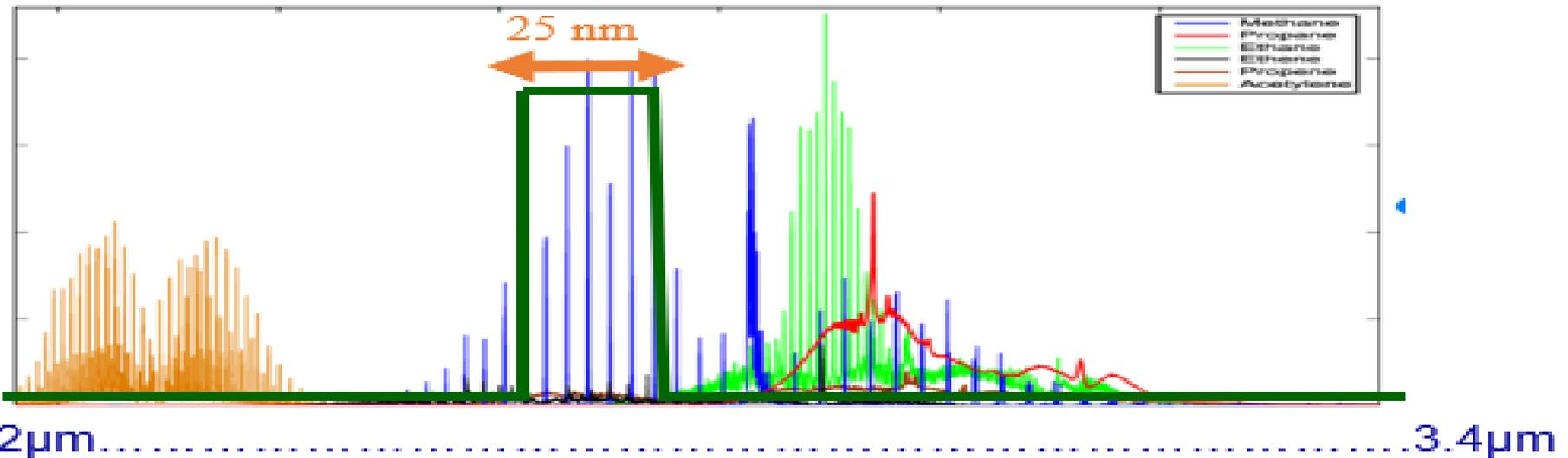
Ian Reilly –Vortex Optical Coatings Ltd.

What the filter actually does ?

...It ‘hugs’ the area of difference.

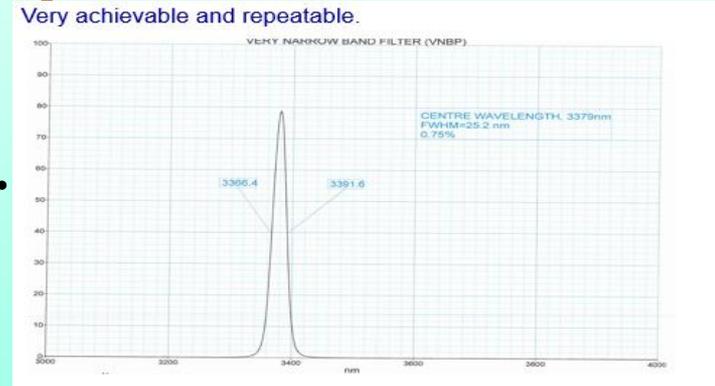
Example.

1. Differentiation of Hydrocarbons in MID IR, expanded scale

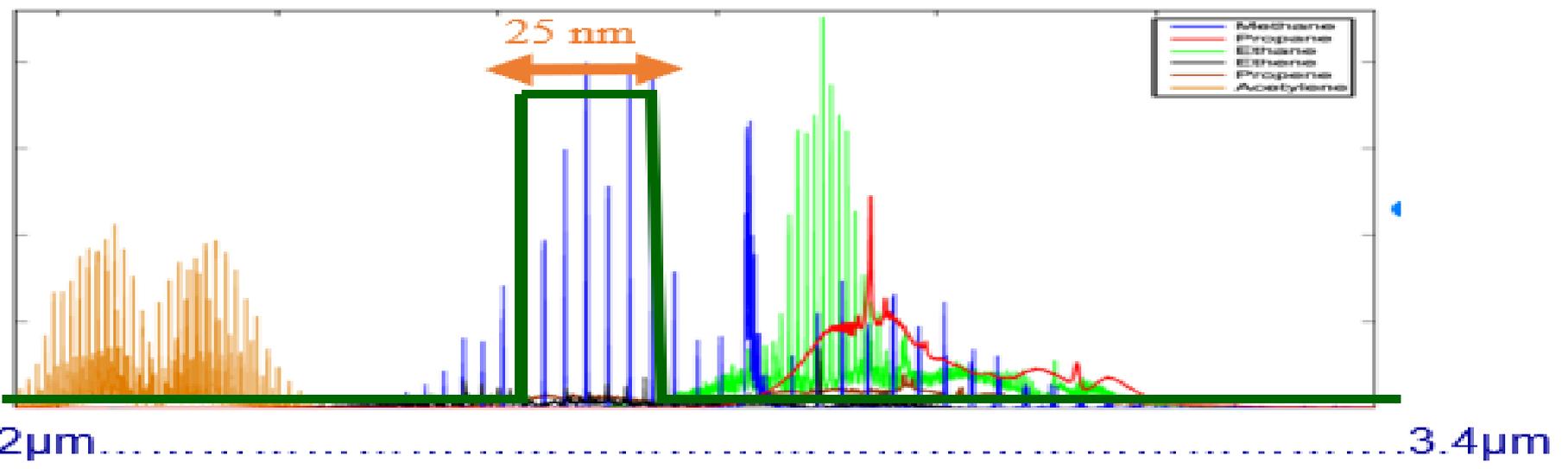


What the filter actually does ?

...It ‘hugs’ the area of difference.
Example.



1. Differentiation of Hydrocarbons in MID IR, expanded scale



How are we rising to it ?

Filters that are.....

- Very accurately positioned

Centre Wavelengths (CWL) to 0.15% accuracy possible

- Increasingly narrow

Width (BW/FWHM) of filter $<0.8\% \times \text{CWL}$

- Highly temperature stable

$<0.1\text{nm}$ per Deg C of temp rise

- Cost

Specify where needed, but don't over-specify, work with your filter manufacturer!



The Epic questions.....

- What we can do for you.....

Work with you to make your detection dreams a reality!

What the community can do for us

Make IR more attractive....lower cost detectors.



IR Filters-Challenges We meet & Ones We are Working On!

Ian Reilly –Vortex Optical Coatings Ltd.



Thank you for your attention!

Contact Details

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