



High Gas Temperature Probe

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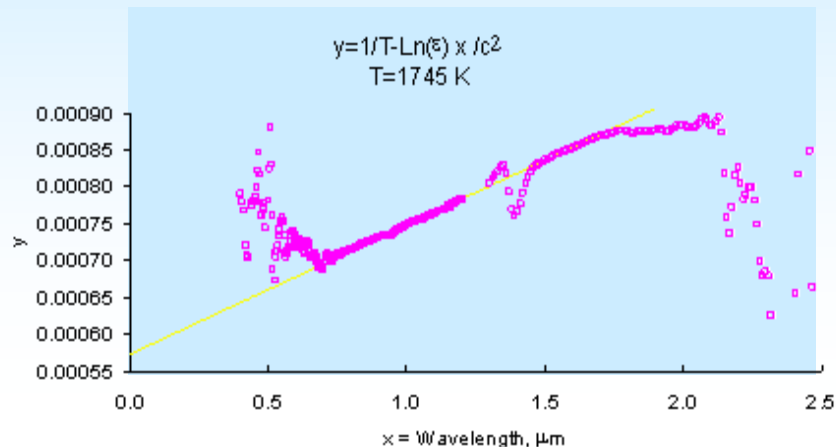
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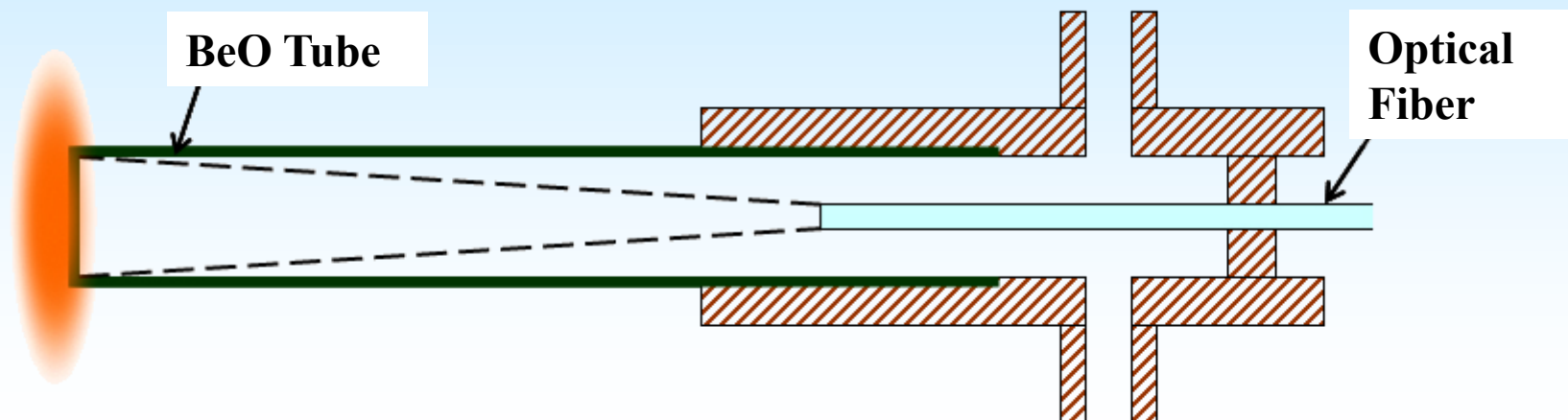
High Temperature Gas Temperature Probe



Tested at an atmospheric combustor to 1745K (1470C)

- Usable up to 2000°C in oxidizing atmospheres
- High gas temperatures correlated with NO_x formation.
- Beryllia sheath - excellent resistance to thermal shock
- No water cooling needed- length: 0.28 m, diameter of the support section: 12.7 mm, the sheath diameter: 8 mm
- Signal transmitted from the probe to a multiwavelength pyrometer spectrometer via optical fiber- no EMI interference and no emissivity values needed.

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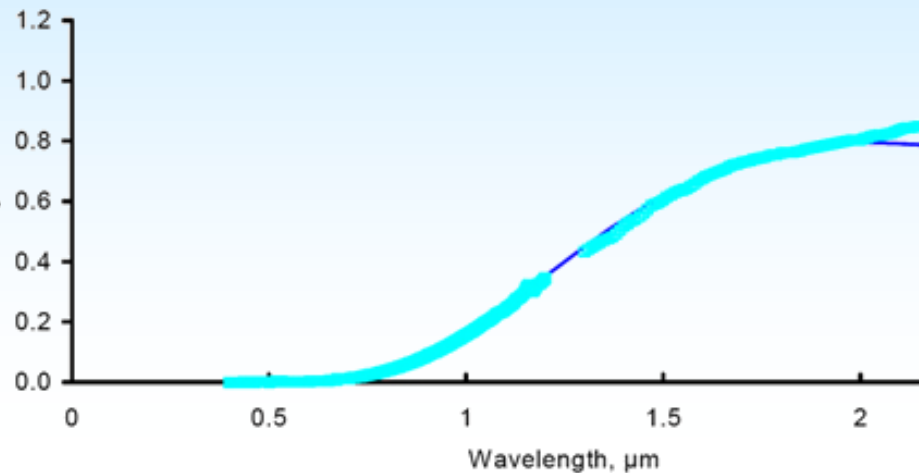


- Ceramic temperature probe sheath/support assembly

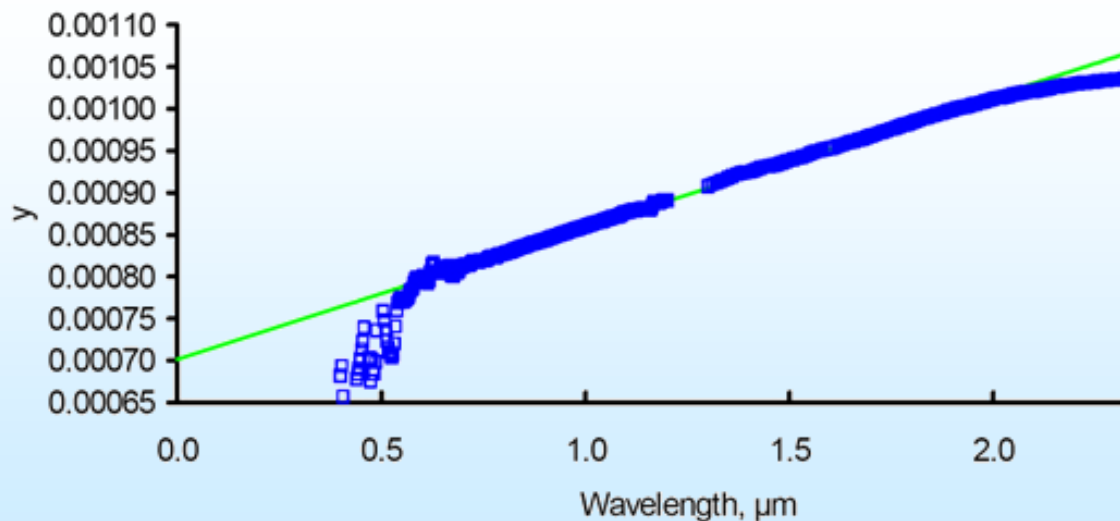


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- Beryllia Gas Probe Tube Surface Measurement



$T = 1425 \text{ K}$



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With

- constant material properties
- no radiation correction

Gas and probe temperatures are related by

$$T_g = \frac{T(L)\cosh(aL) - T_b}{\cosh(aL) - 1}$$

where

T_g = gas temperature

L = length of probe

$T(L)$ = temperature of probe tip

T_b = temperature of base of probe

$a = f(h, k, D, t)$

