Spectral measurement devices

- colorimeters
  - filter
  - template
- monochromators
  - prism
  - grating
- spectroradiometers
  - spectroradiometer
  - spectrophotometer

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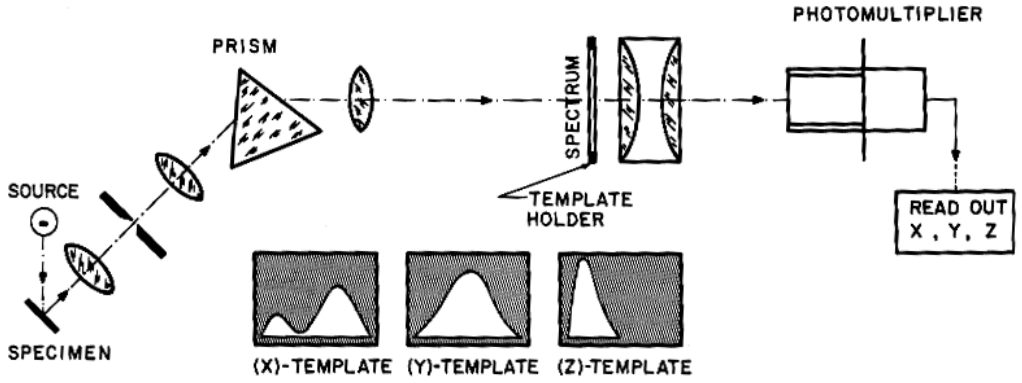
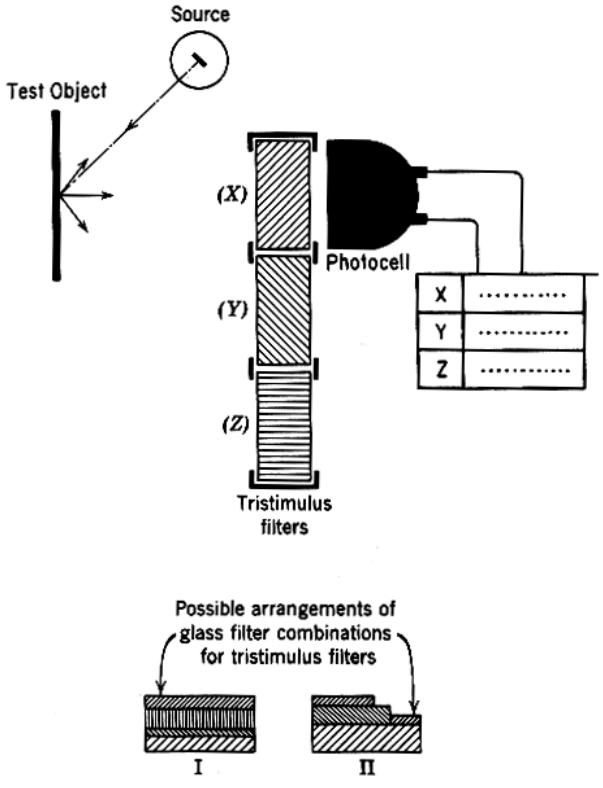
Colorimeters



template colorimeter



filter colorimeter

(from Wyszecki and Stiles)

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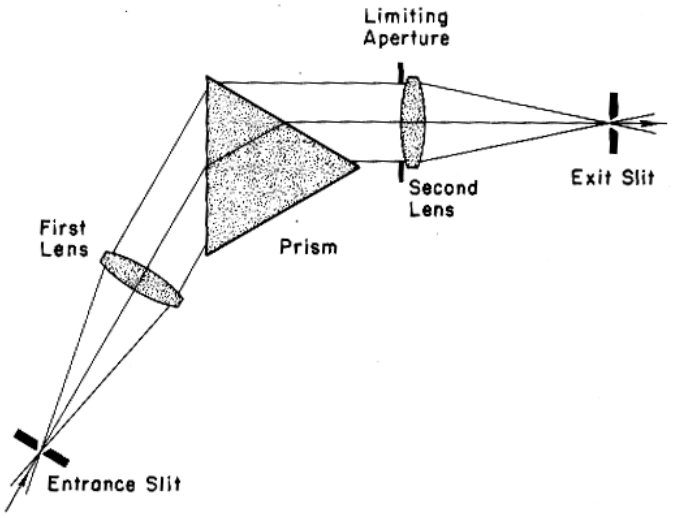
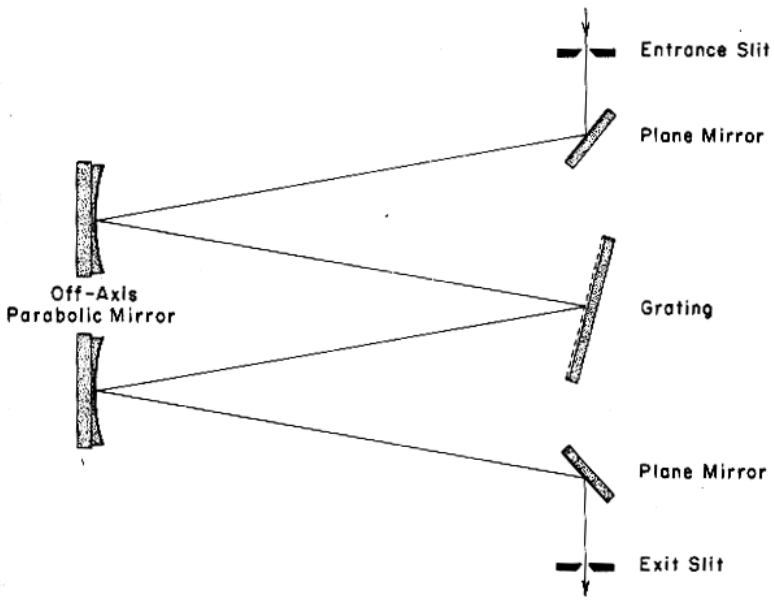
Monochromators



single-prism monochromator



Ebert-type grating monochromator

(from Wyszecki and Stiles)

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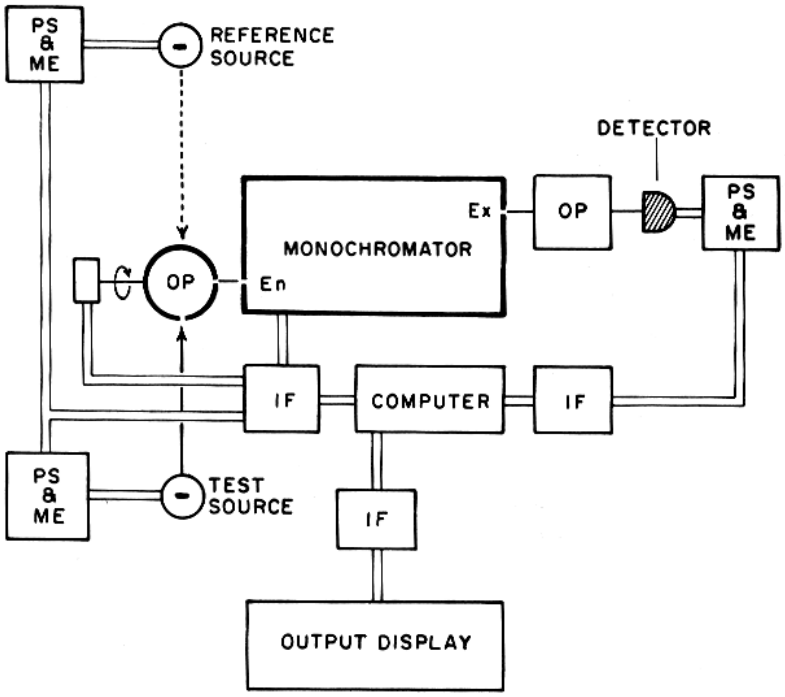
Spectroradiometer



(from Wyszecki and Stiles)

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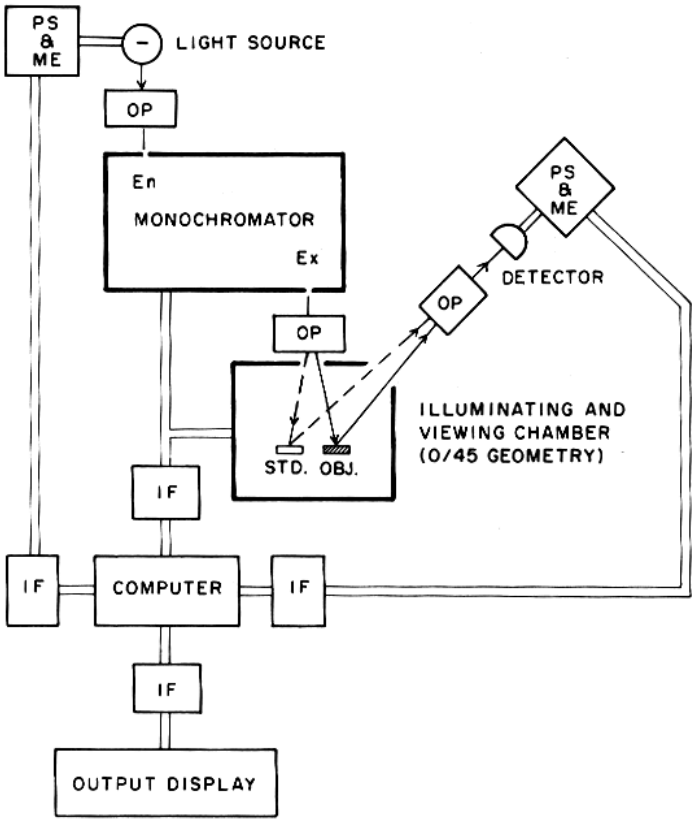
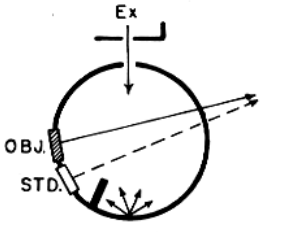
Spectrophotometer (spectro-photo-reflectometer)



typical viewing chamber:



INTEGRATING SPHERE (DIFF./O GEOMETRY) FOR REFLECTANCE-FACTOR MEASUREMENT

(from Wyszecki and Stiles)

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How much spectral characterization is enough? (for computer graphics)

- RGB, broadband light source
  - reflections wrong if rendering light differs
- RGB, light source = rendering light
  - first reflection correct
  - subsequent reflections wrong
  - 3 x 3 matrix better than 3 multiplies (Peercy, 1993)
- better solutions
  - basis functions, usually > 3
  - many samples, e.g. 30 x 10nm

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