

# Properties of optical instruments

## Visual optical systems part 1: afocal systems (telescope type)

**Section 6 about field of view**

# 6 – Field of view

Entrance pupil

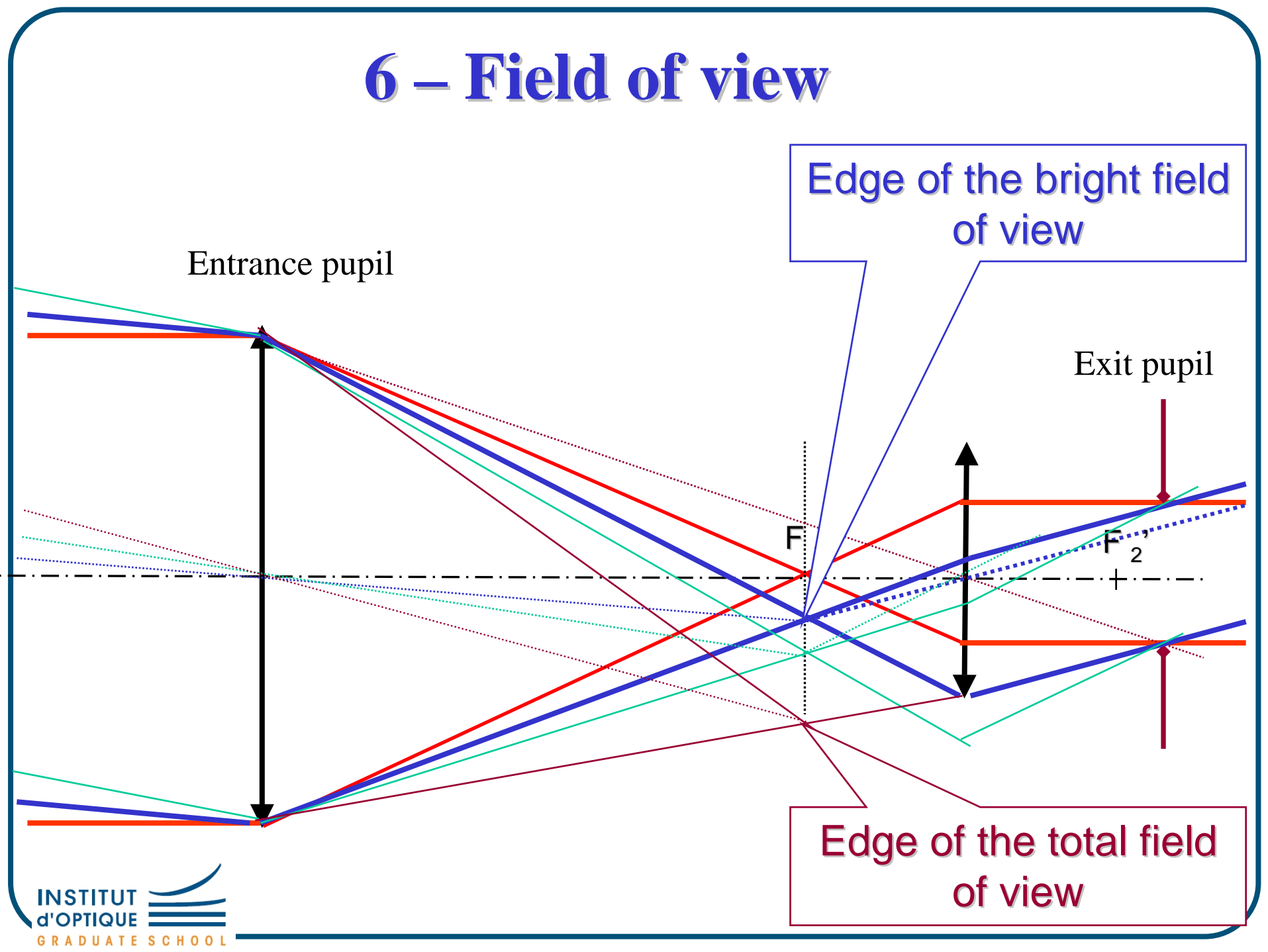
Edge of the bright field of view

Exit pupil

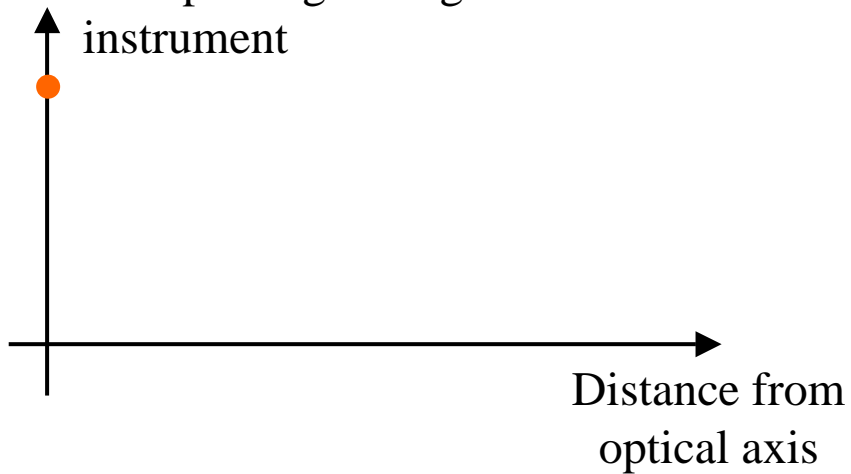
F

F<sub>2</sub>

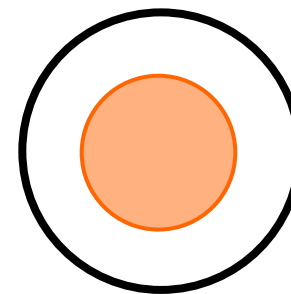
Edge of the total field of view



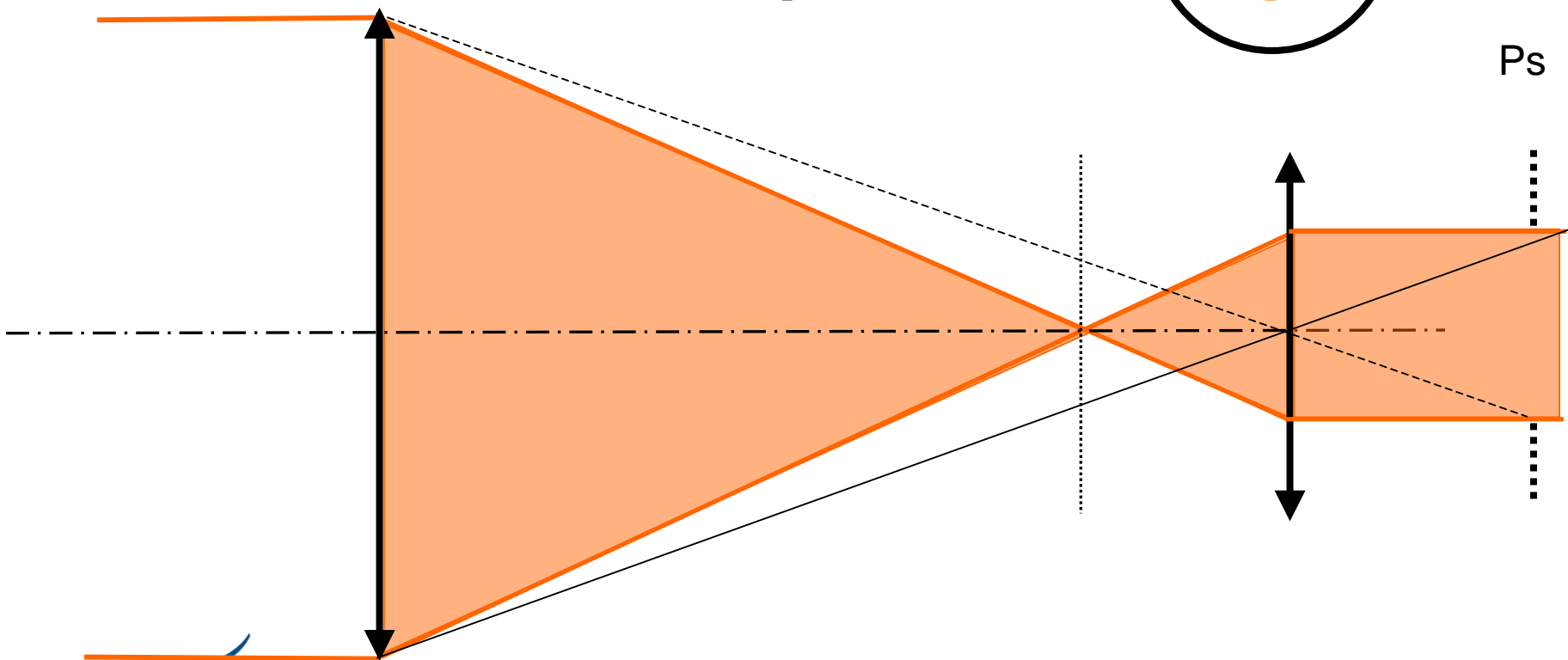
Flux passing through the instrument



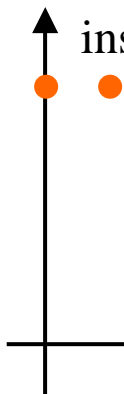
**On axis**



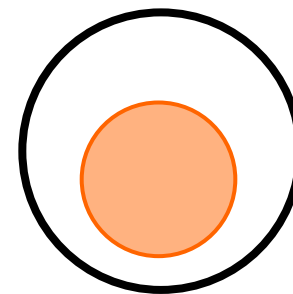
Ps



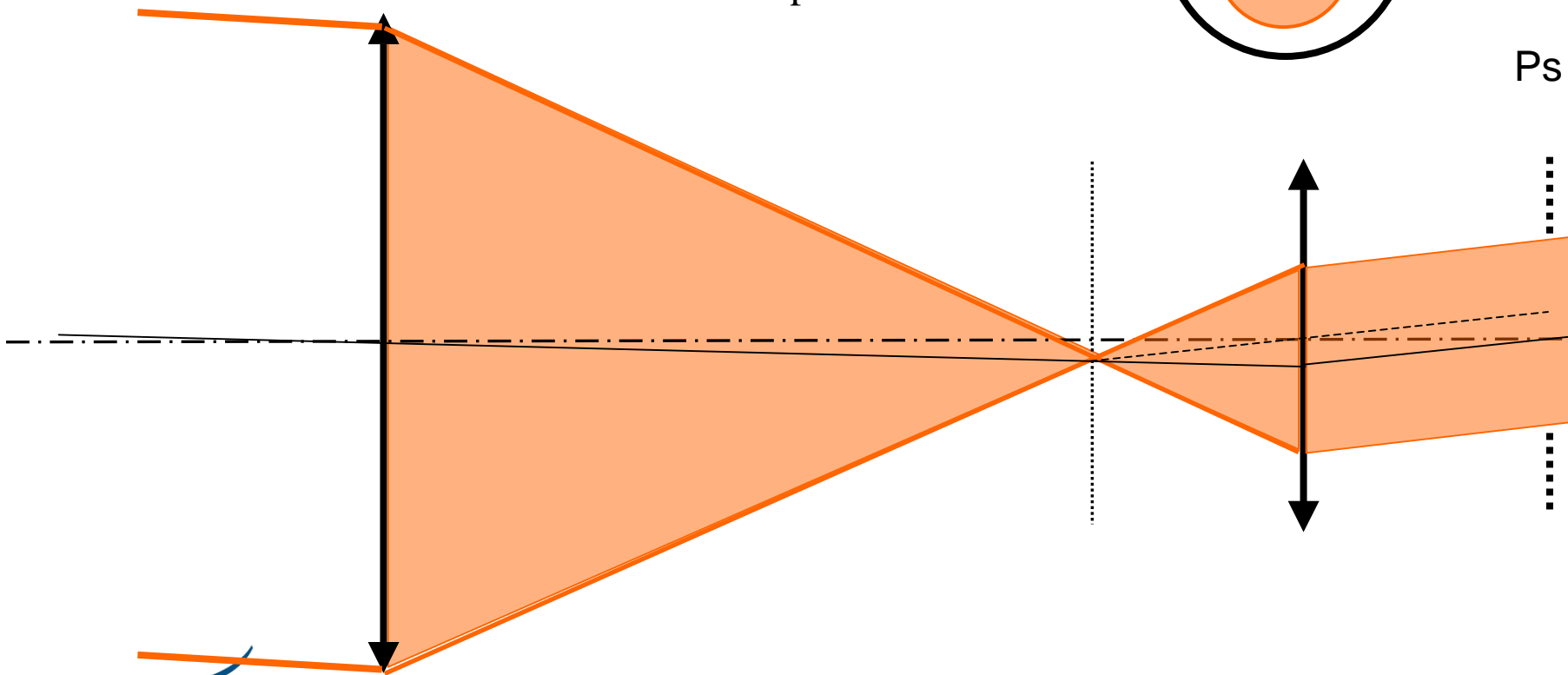
Flux passing through the instrument



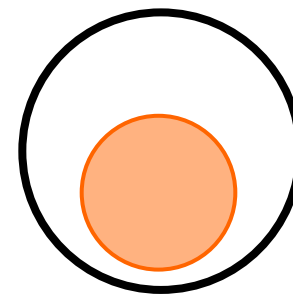
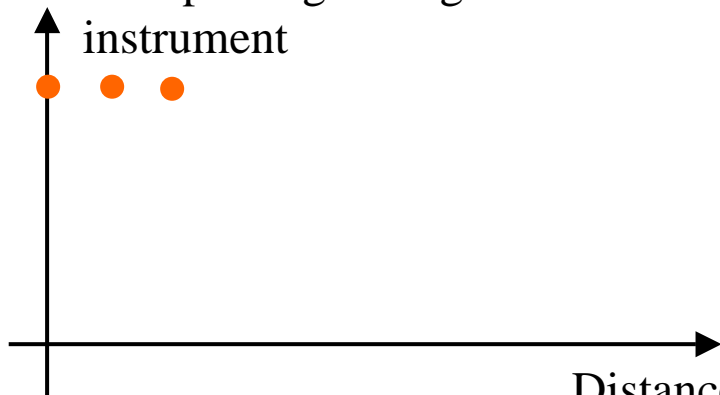
Distance from optical axis



Ps

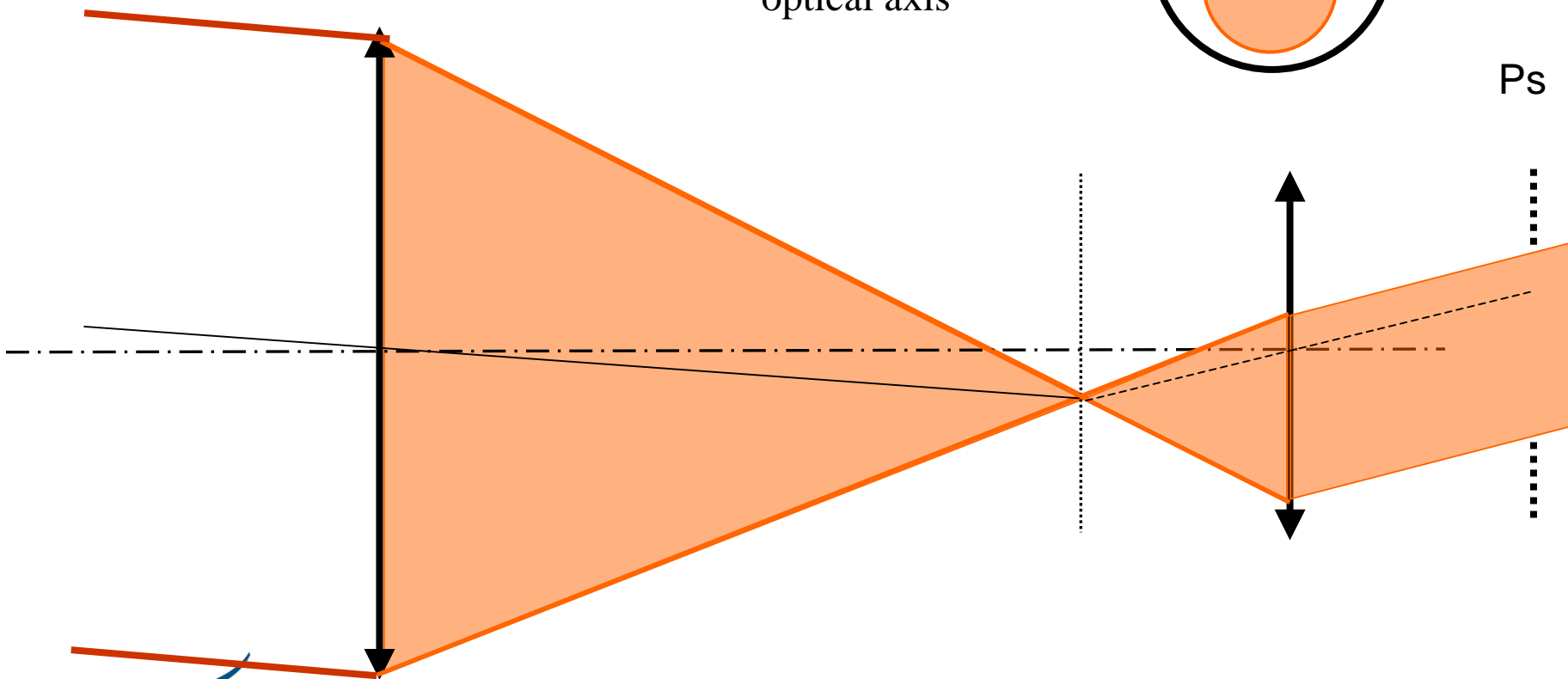


Flux passing through the instrument

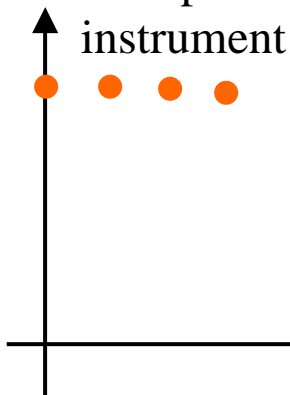


Distance from optical axis

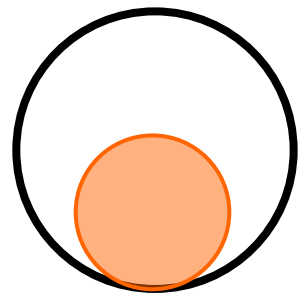
Ps



Flux passing through the instrument

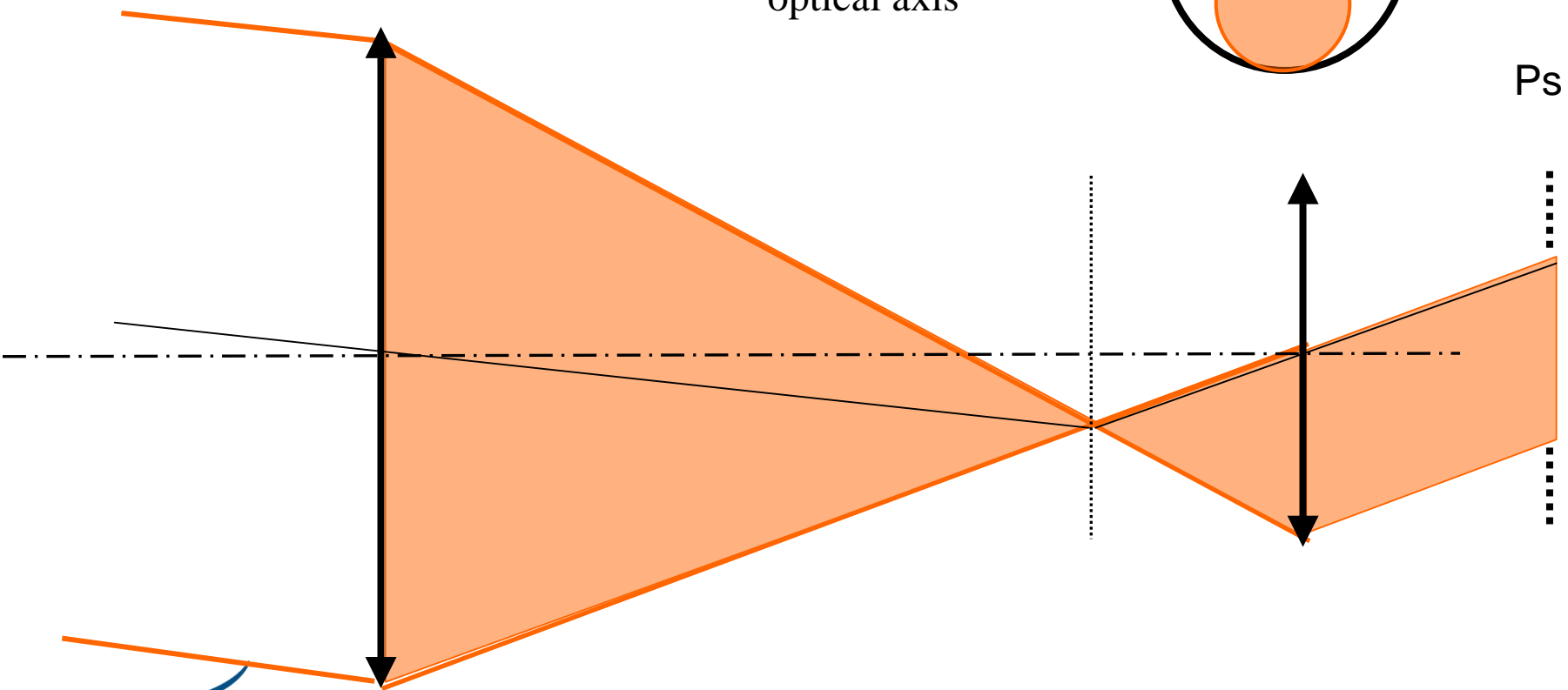


## Edge of bright field



Distance from optical axis

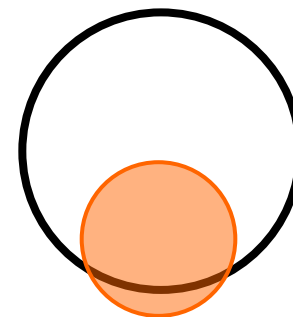
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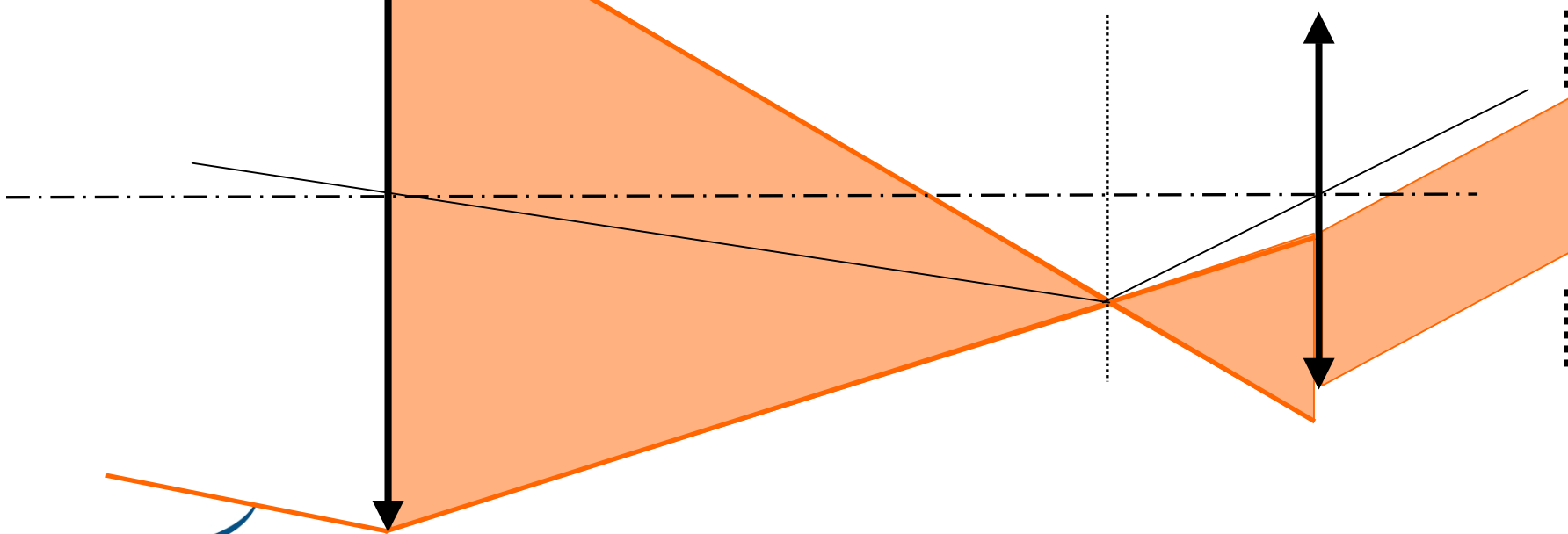
Flux passing through the instrument



Distance from optical axis



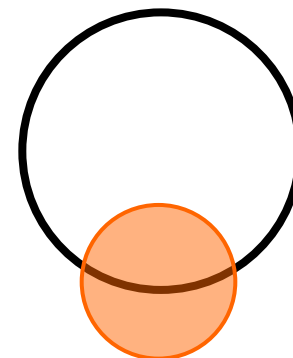
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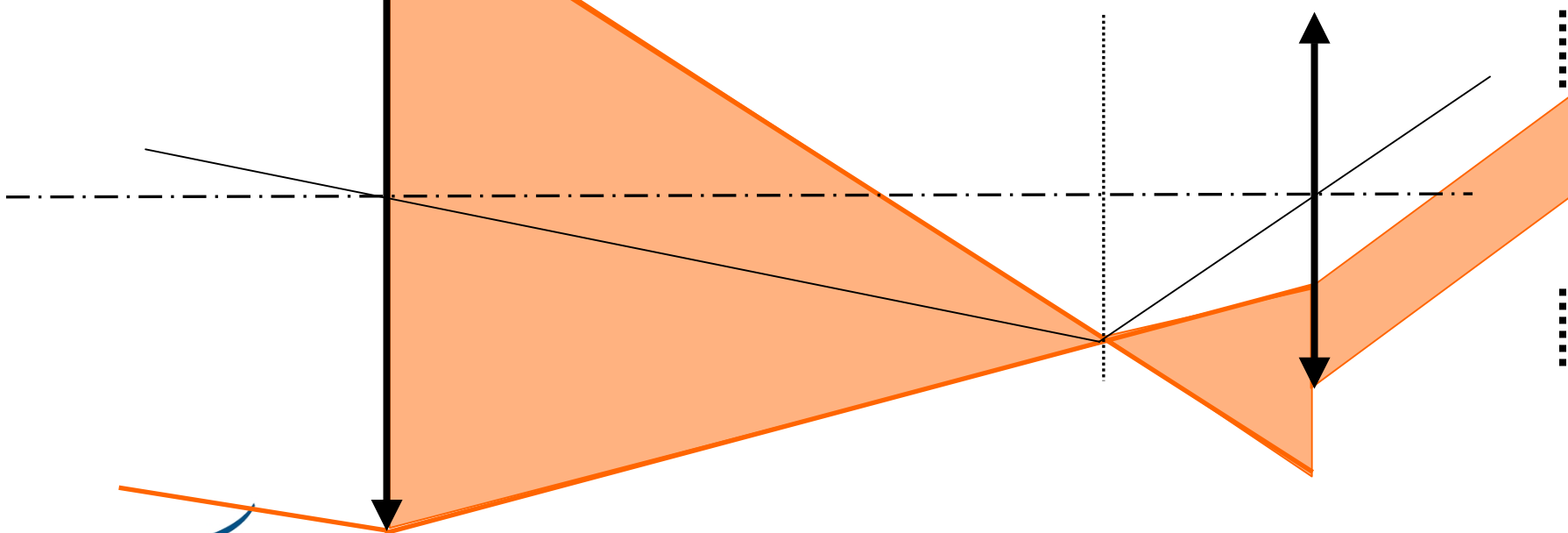
Flux passing through the instrument



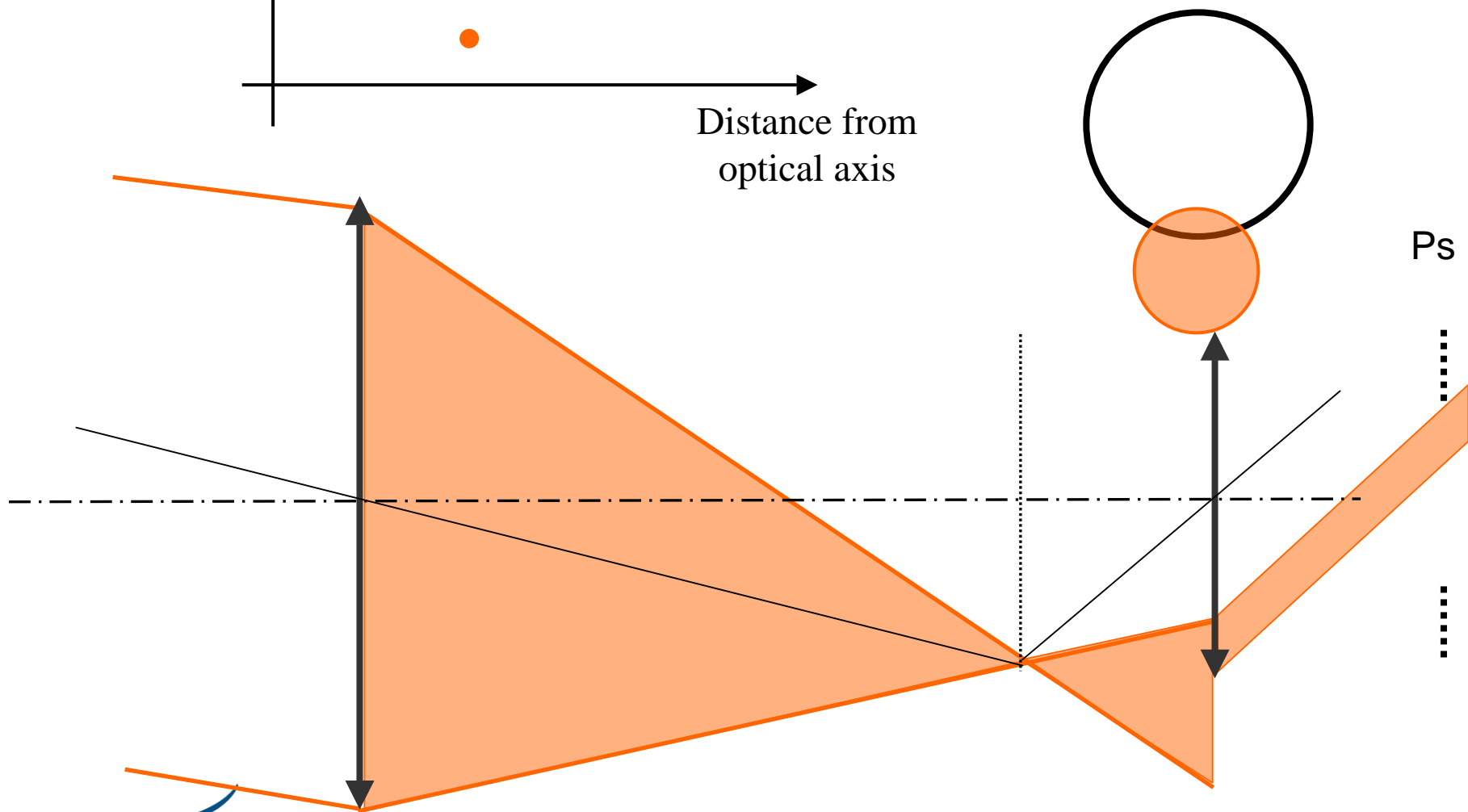
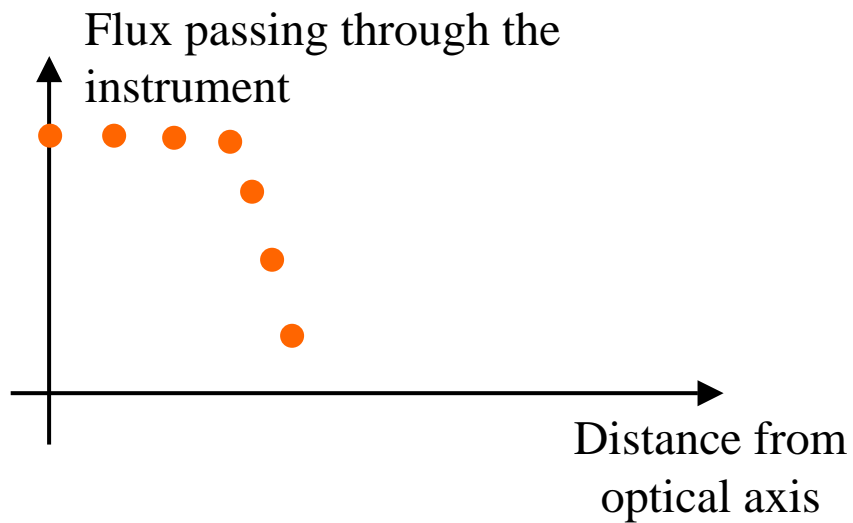
Distance from optical axis



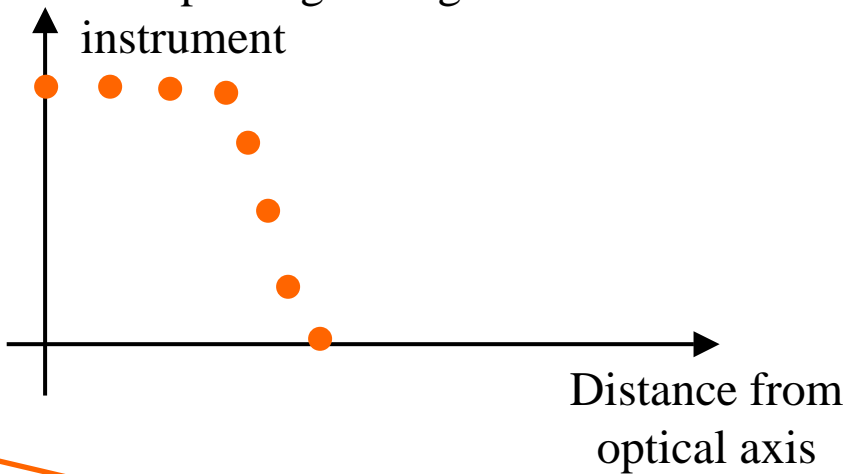
Ps



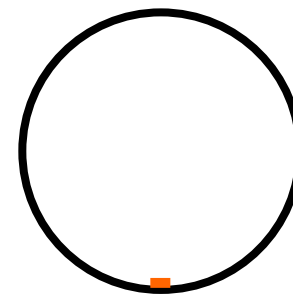




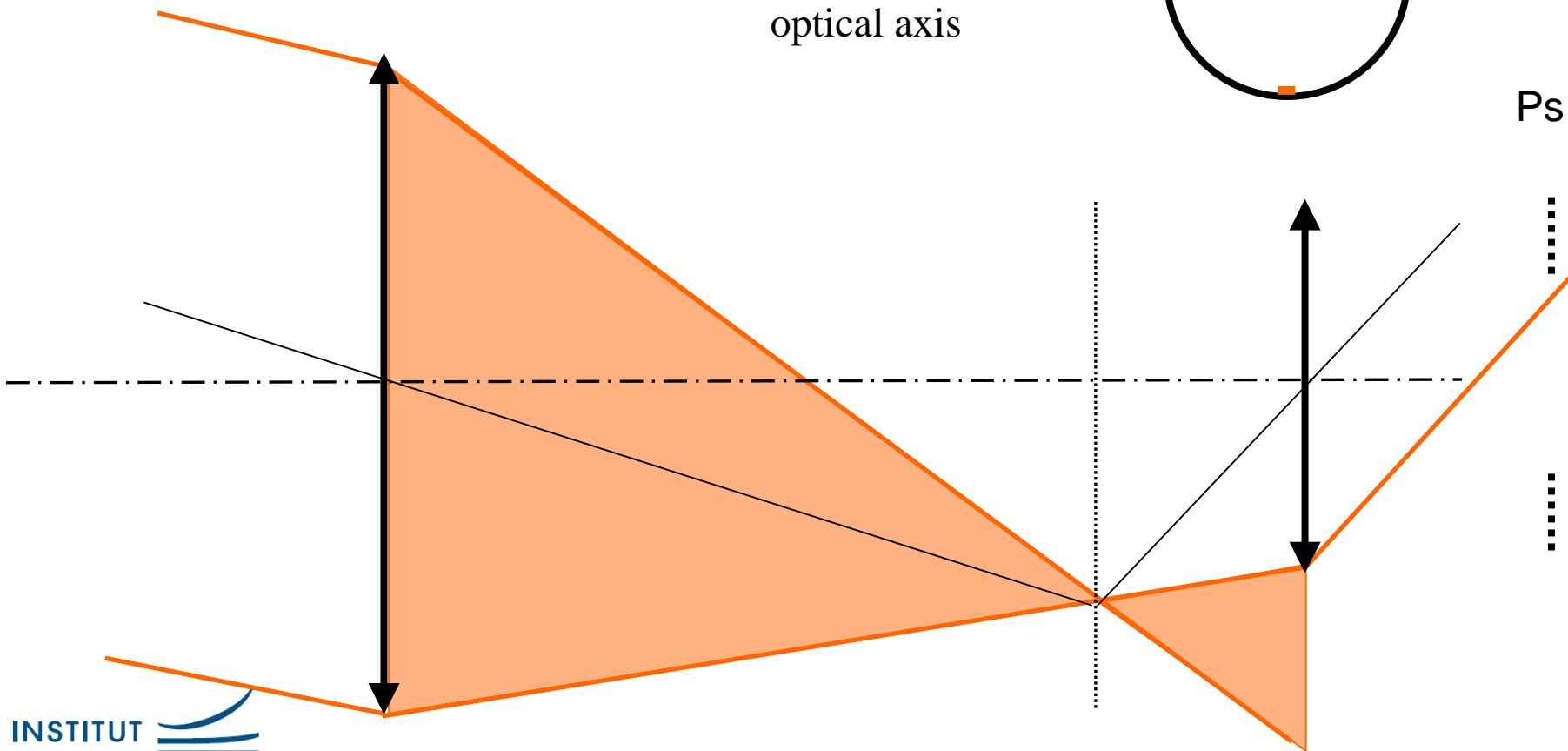
Flux passing through the instrument



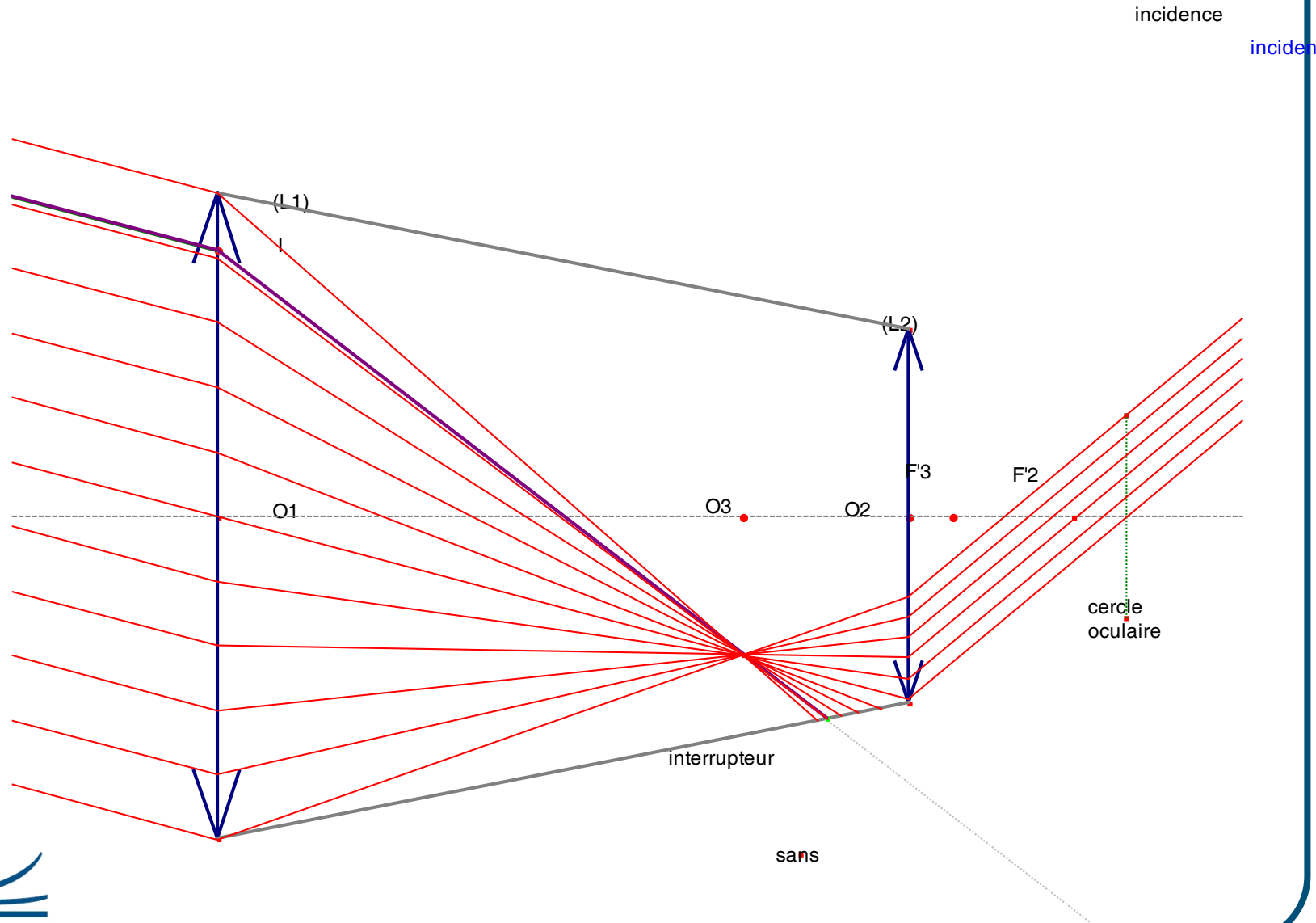
**Edge of total field**



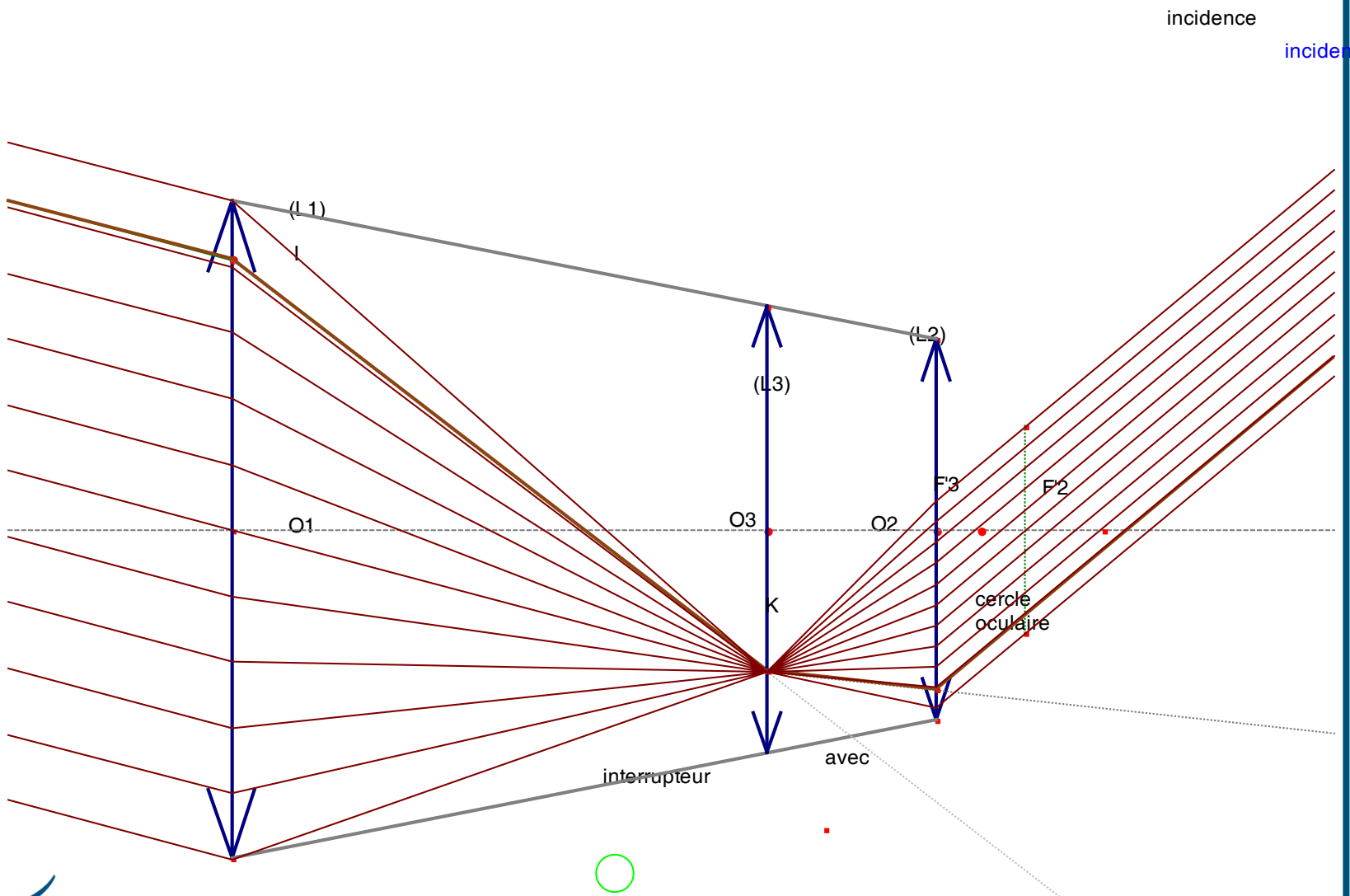
Ps



# Role of the field lens



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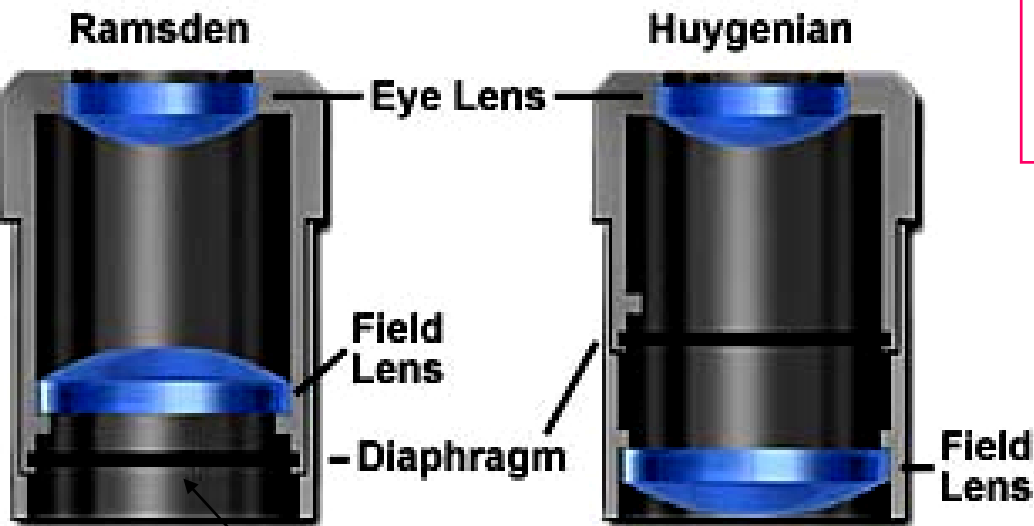


# Two-lens eyepieces

2 types of eyepieces :

- Positive eyepiece (Ramsden 3-2-3) :  $F_{oc}$  real
- Negative eyepiece (Huygens 3-2-1) :  $F_{oc}$  virtual

## Simple Eyepieces



measuring  
graticule

Symbol for 2-lens eyepiece :

Example:

$$(3, 2, 3)$$

$$f_1' = 3a$$

$$e = 2a$$

$$f_2' = 3a$$