



Wolter type telescopes

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Overview

- Motivation and goals
- Wolter type telescopes
- The concept
- References



Motivation and goals

- Increase neutron flux for the investigation of small samples
- Small angle neutron scattering
- Reflectometry
- Parabolic and elliptic guides:
 - focal point beyond guide exit
 - well defined beam characteristics
 - gain factor > 20 when compared with straight guides
- Design of a focusing system:
 - achromatic
 - reduced absorption.

Wolter type telescopes

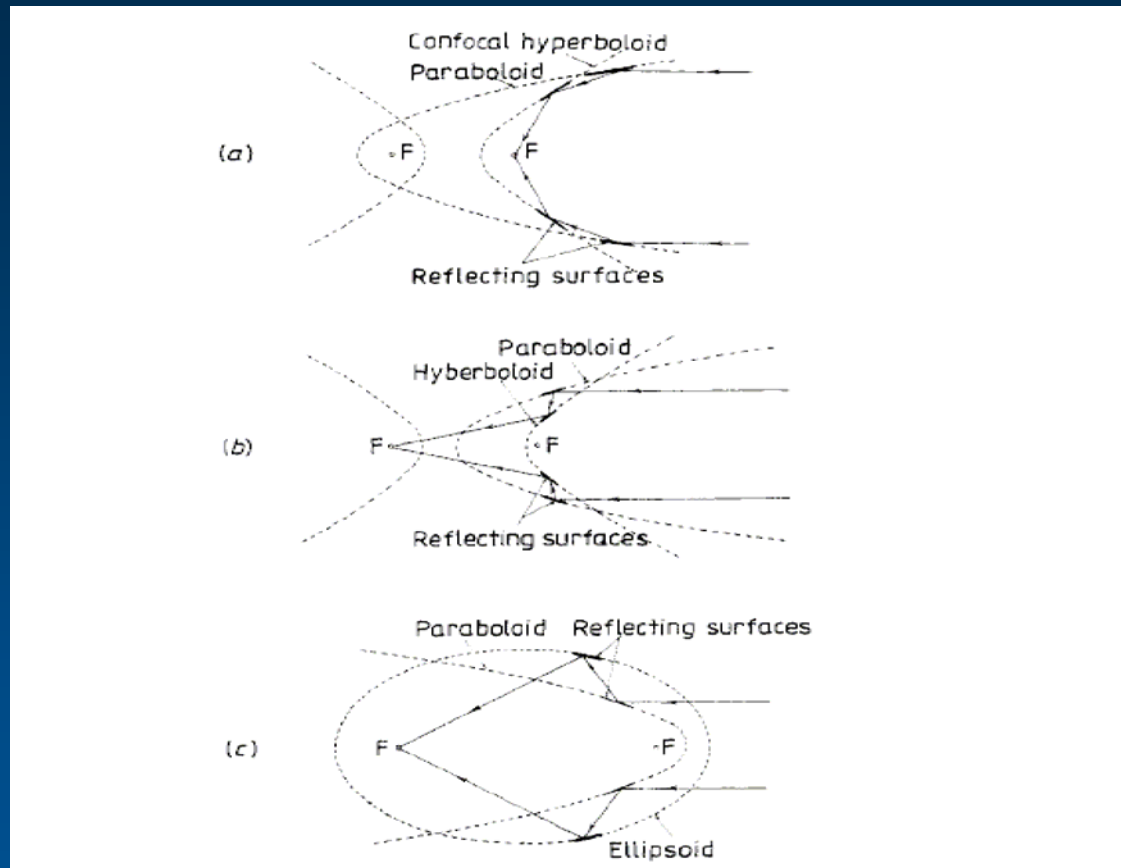


Fig. 1 Schematic of the different Wolter telescopes called type I, type II and type III (top to bottom)

The concept

- Definition of a point source of neutrons at F_p :
 - parabolic or elliptic guide
 - parabolic mirror at end of straight guide
- Imaging of $F_p = F_{e1}$ into F_{e2} by elliptic mirror
- Applications:
 - focusing SANS: place sample after F_{e1}
 - ReFOCUS: reflectometer as proposed by F. Ott
 - graded multilayers: see contribution of J. Stahn

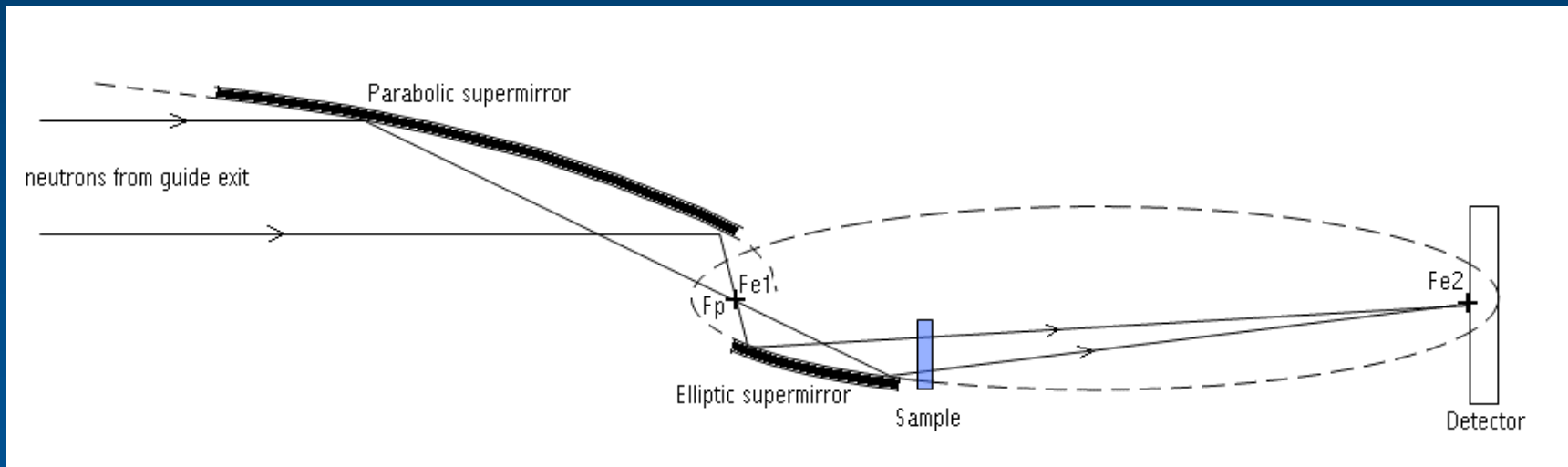


Fig 2. Design of the focusing device with a combination of parabolic and elliptic supermirrors



References

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