

Exercise 3d: Optimization

Build a 40 m long beamline consisting of 2 guides:

- one of constant cross-section ($60 \times 100 \text{ mm}^2$), 30 m long, beginning 2 m from the source
- the second elliptically converging to $40 \times 60 \text{ mm}^2$ cross-section, 6 m long, focusing to a spot 2 from the guide exit

Optimize the position of a $15 \times 15 \text{ mm}^2$ slit at the focal distance for highest flux in the wavelength range 1 to 3 Å by starting at (-20 mm, -20 mm).

Source parameters:

- constant wave source
- $15 \times 15 \text{ cm}^2$
- Maxwellian distribution of 300 K

Guide parameters:

- $m=3$ coating
- no waviness
- no loss by junctions