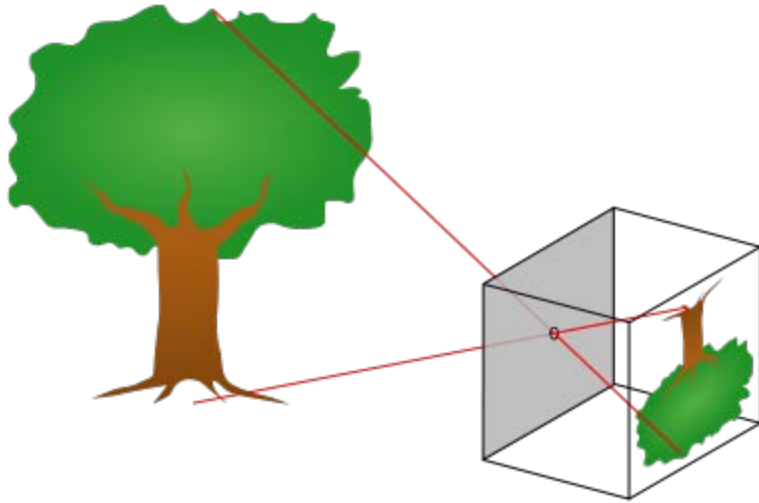


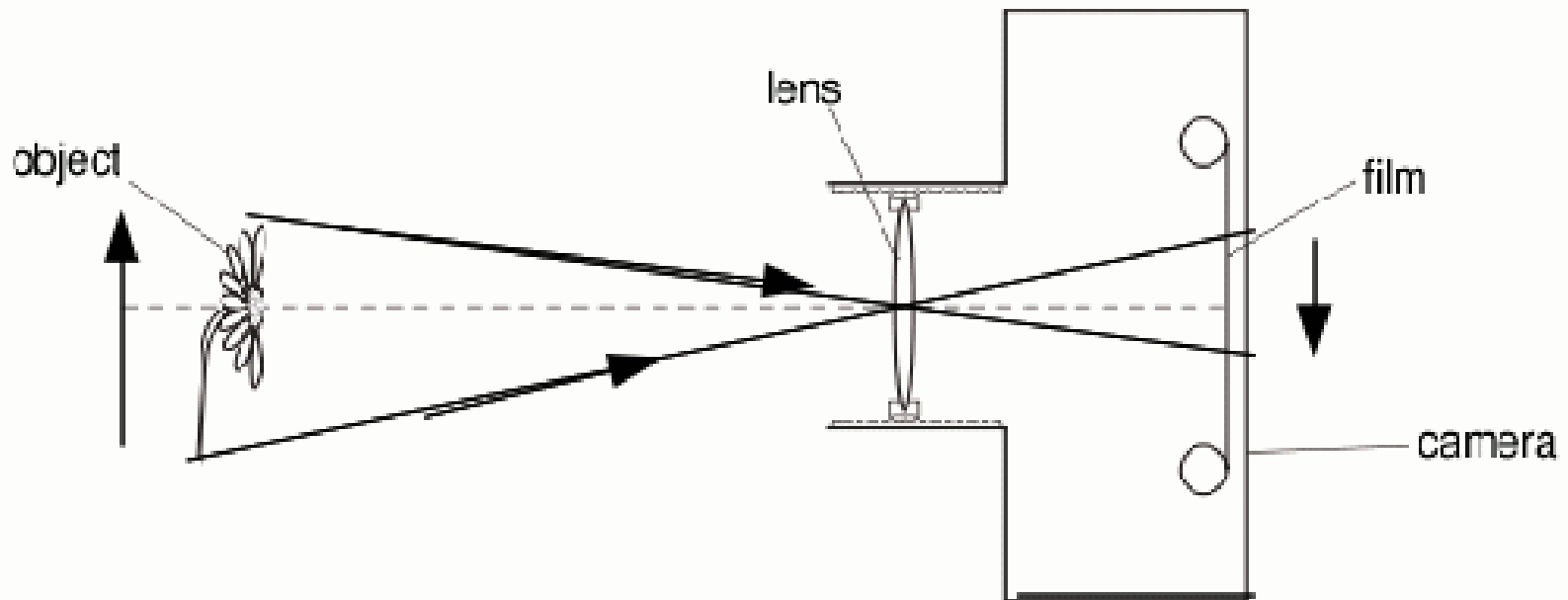
Kako stvari delujejo?

Fotoaparati

Camera obscura



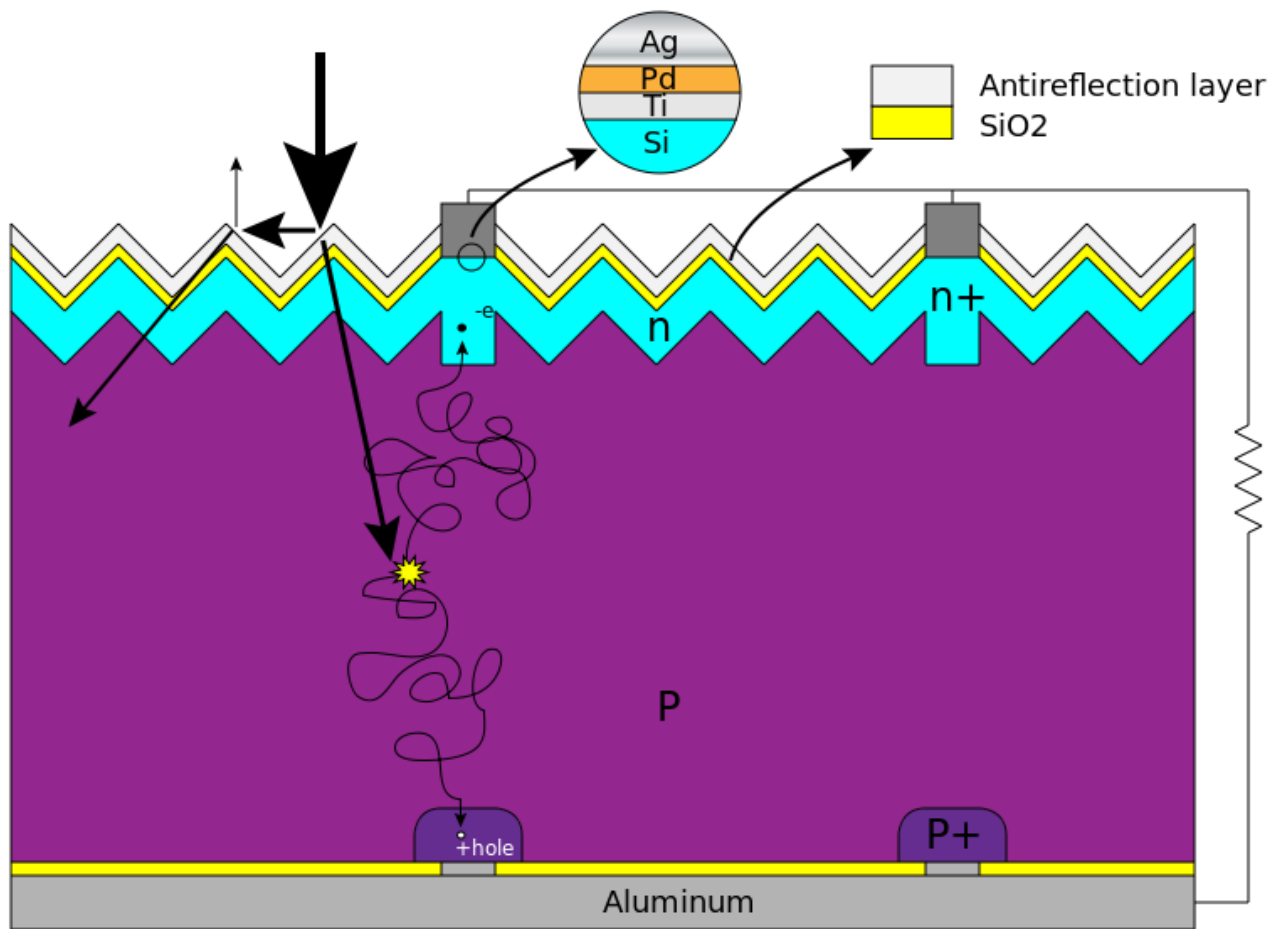
Fotoapararat - sestava



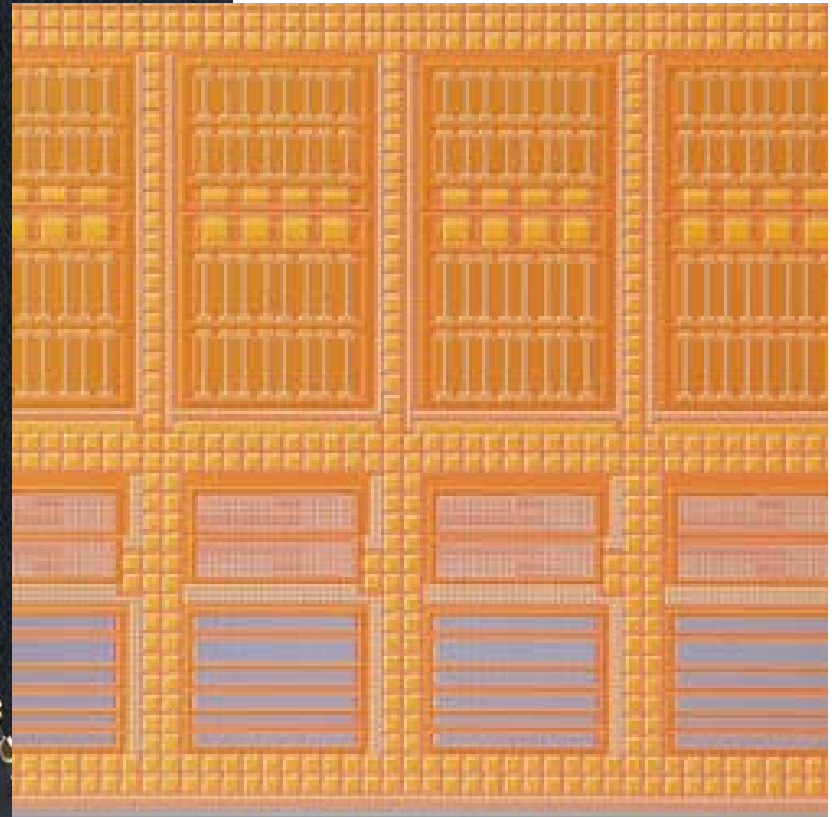
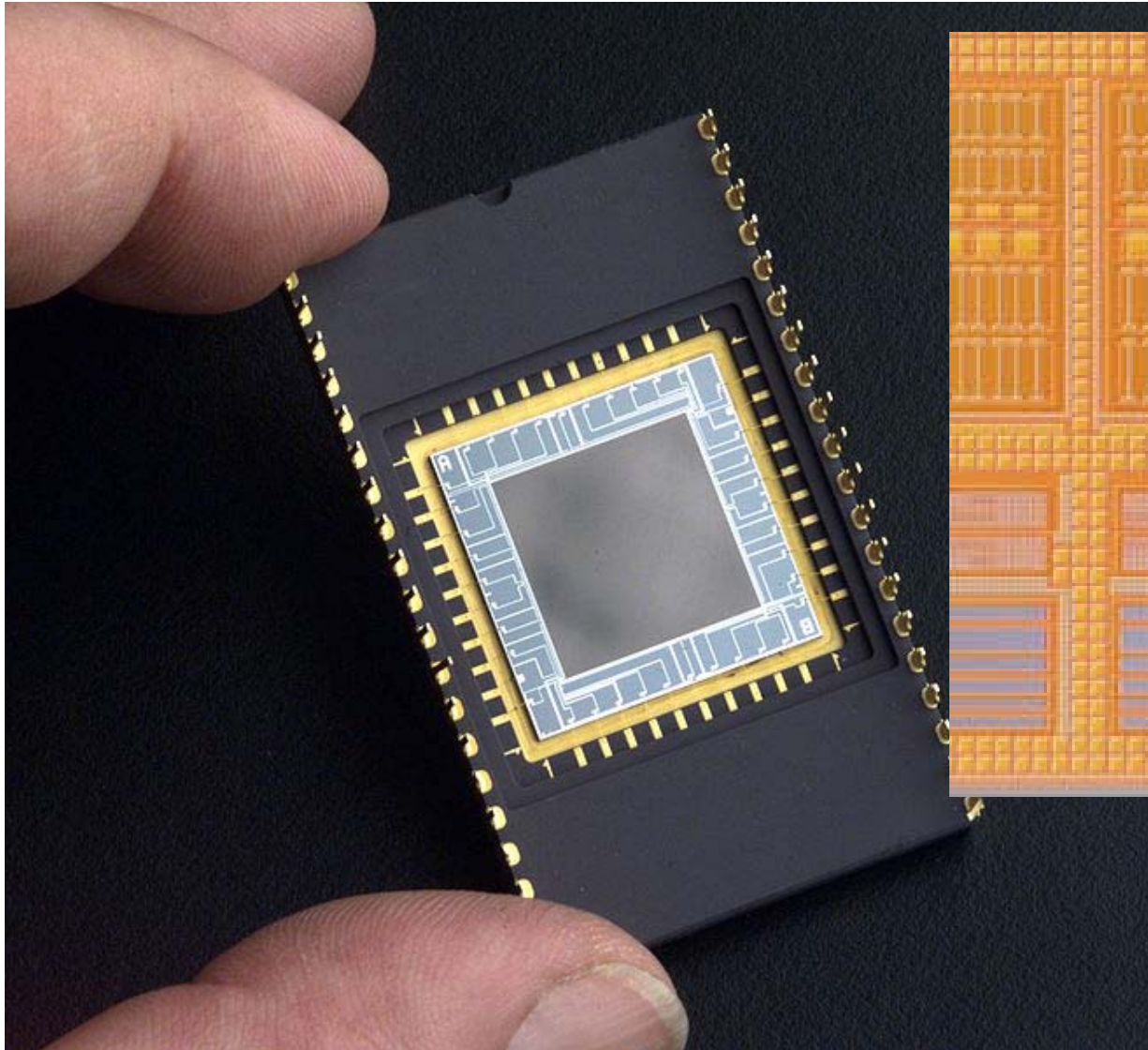
fotodetektorji

- Termometri
- Kemični – fotografski film
- Fotocelica, fotopomnoževalka
- Polprevodniški
 - fotodioda, fotovoltaična (sončna) celica
 - fotorezistor
 - tipala z aktivnimi točkovnimi elementi (Active-pixel sensors, CMOS)
 - CCD (Charge-coupled device)
- ...

Sončna celica

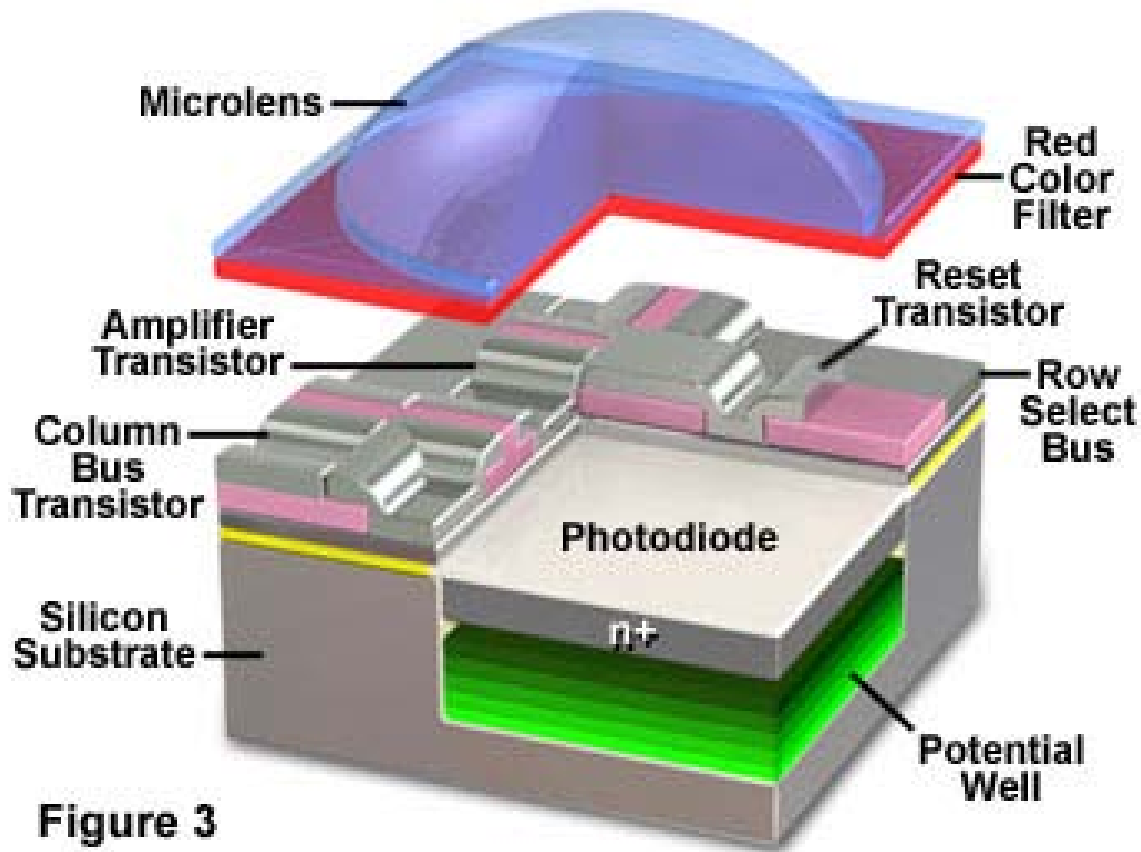


Slikovno tipalo



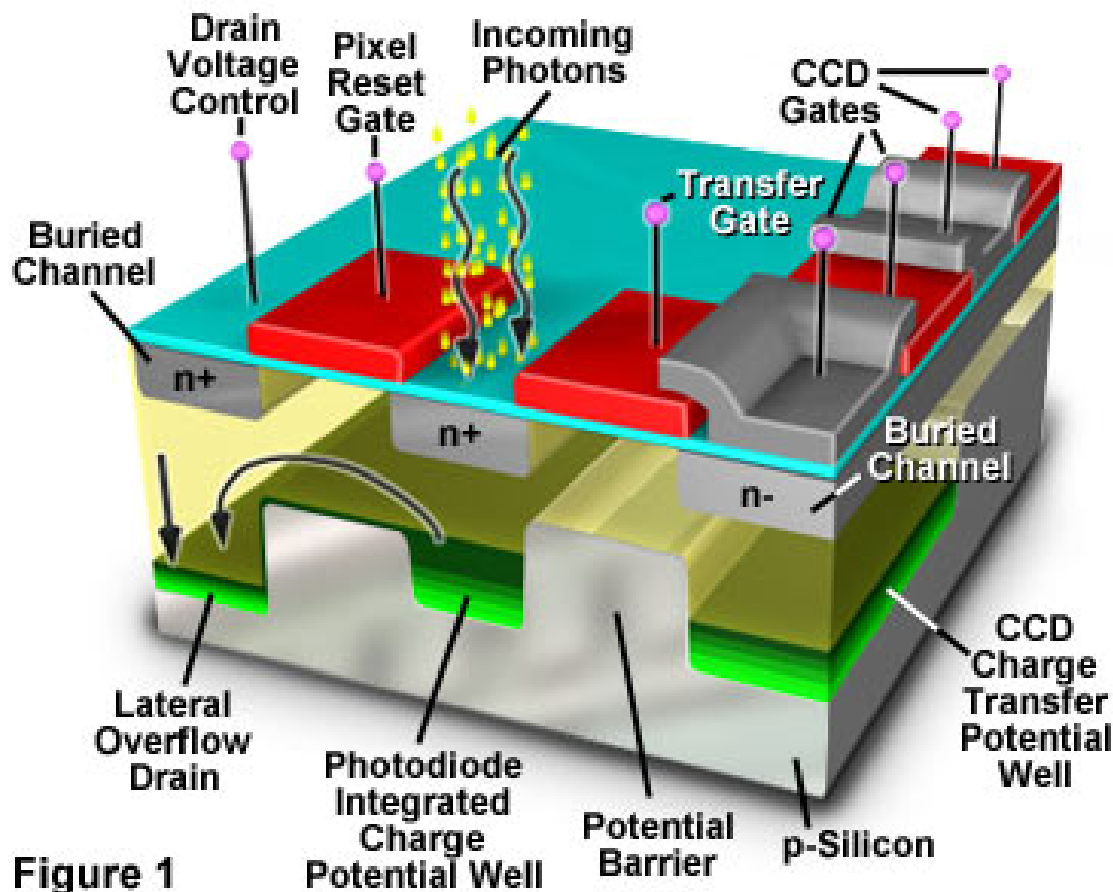
Barvni filter

Anatomy of the Active Pixel Sensor Photodiode

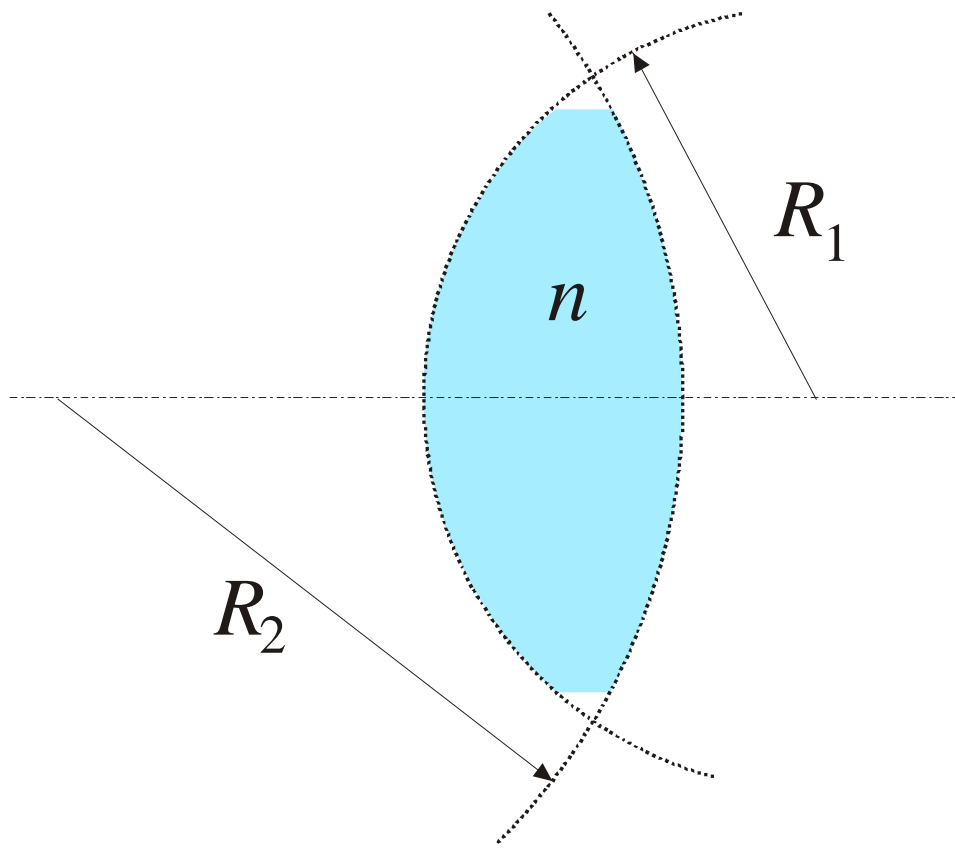


Slikovno tipalo

Anatomy of a Charge Coupled Device (CCD)

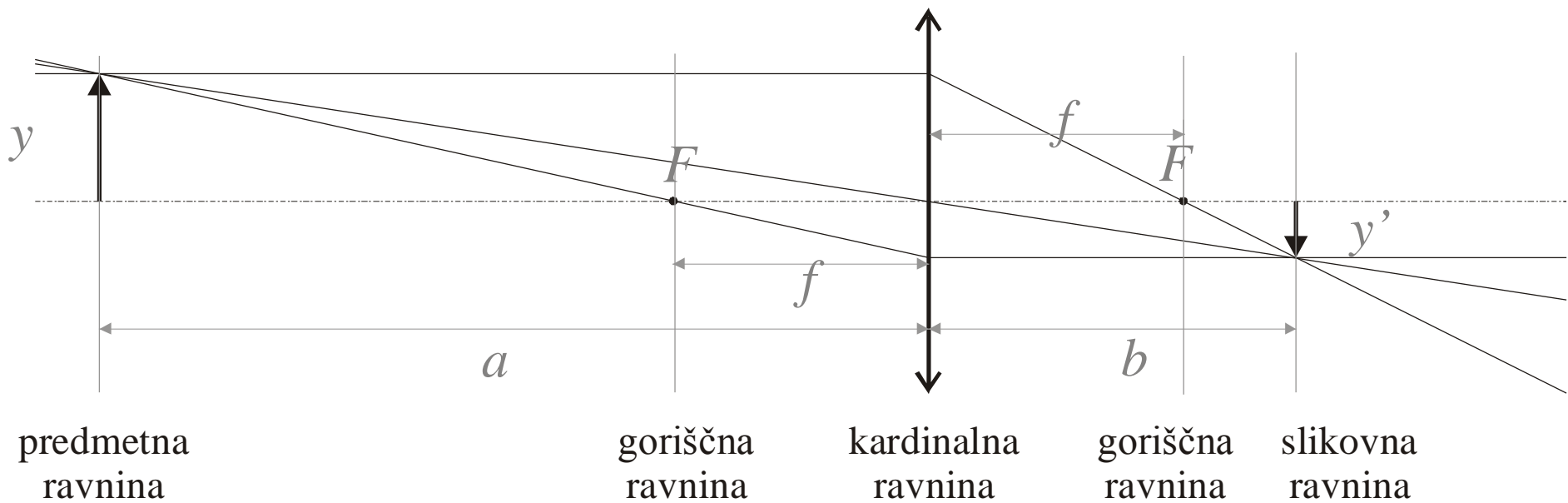


leča



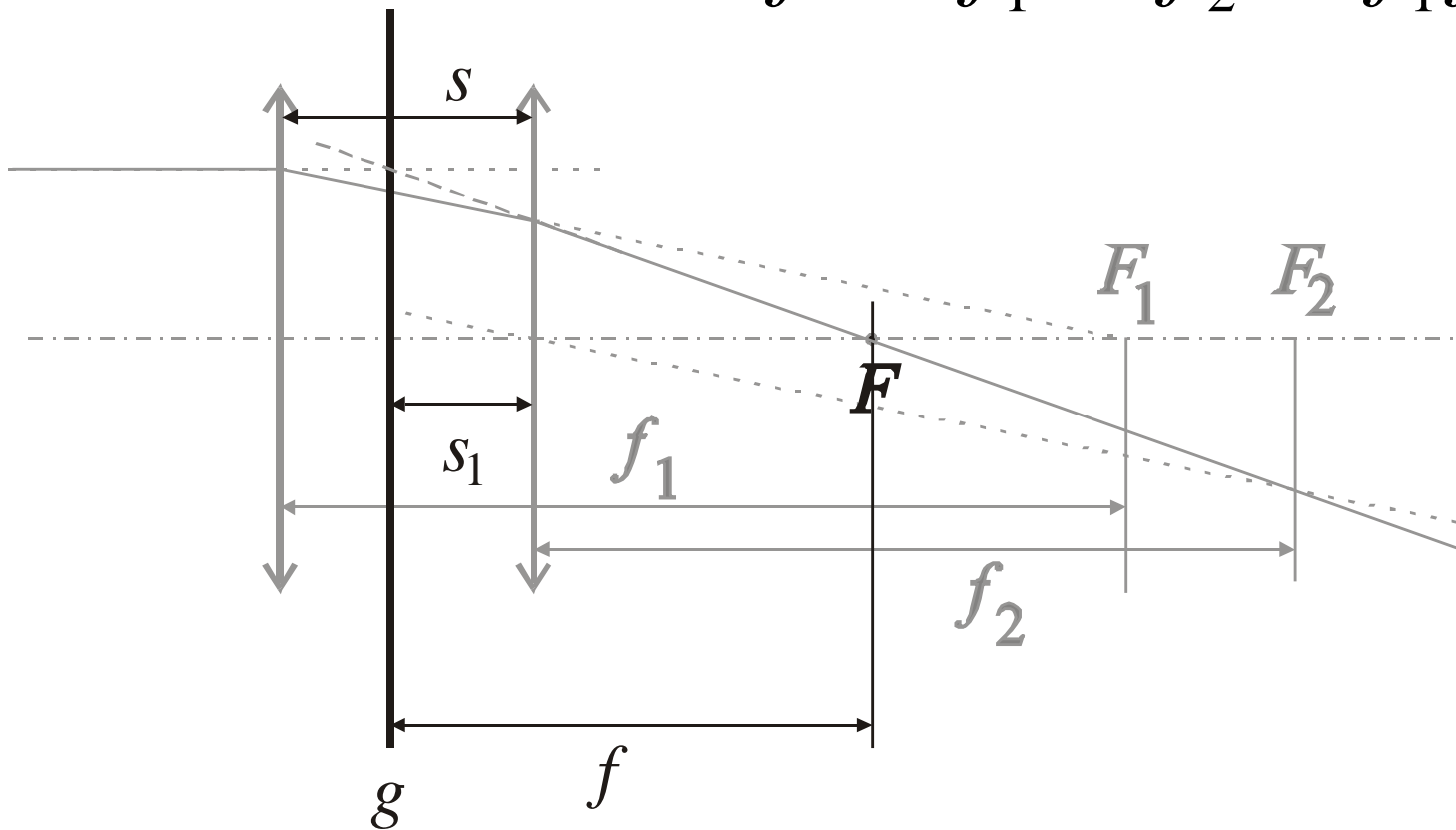
$$\frac{1}{f} = (n - 1) \left(\frac{1}{R_1} + \frac{1}{R_2} \right)$$

Preslikava z lečo

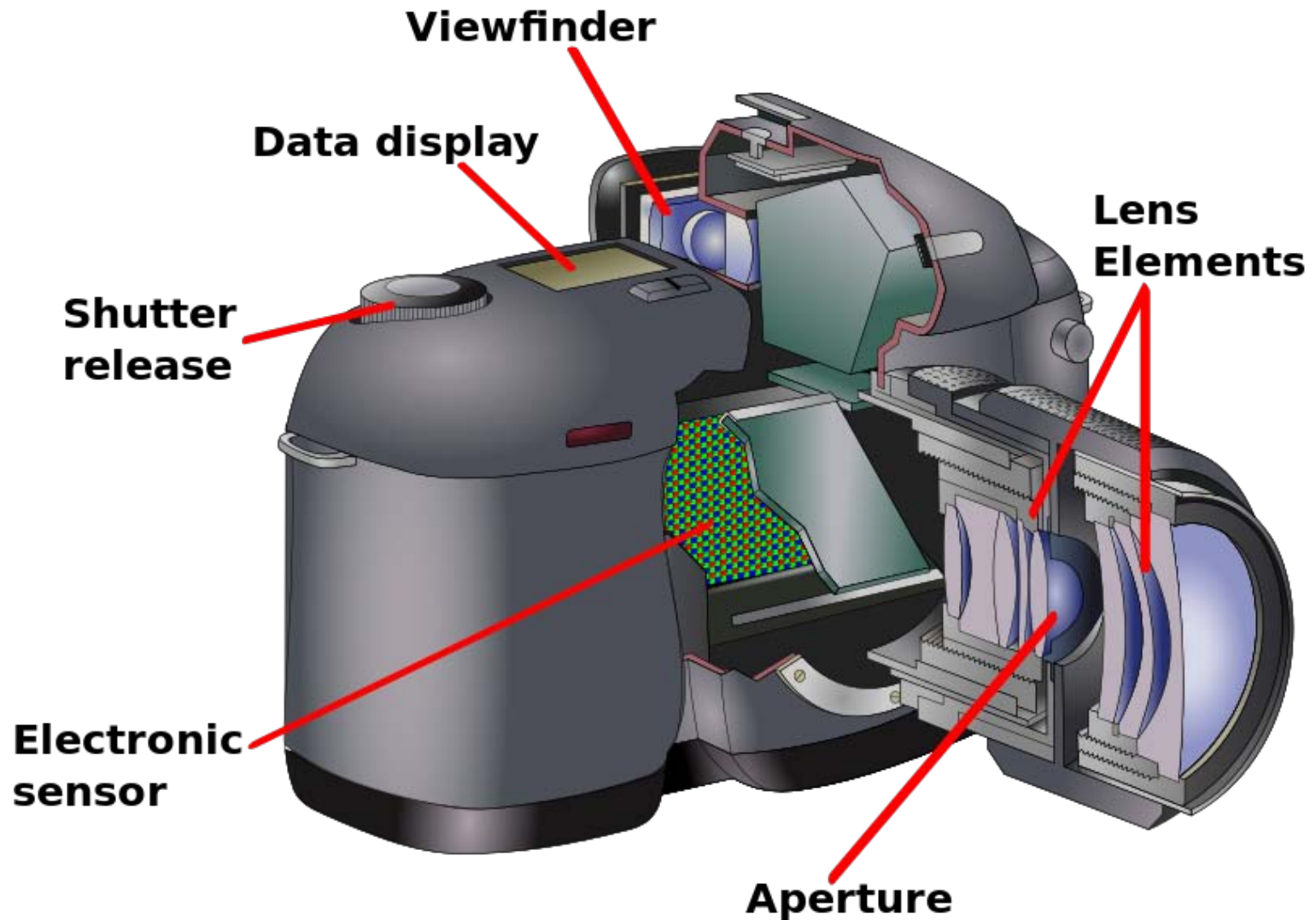


Sestav leč

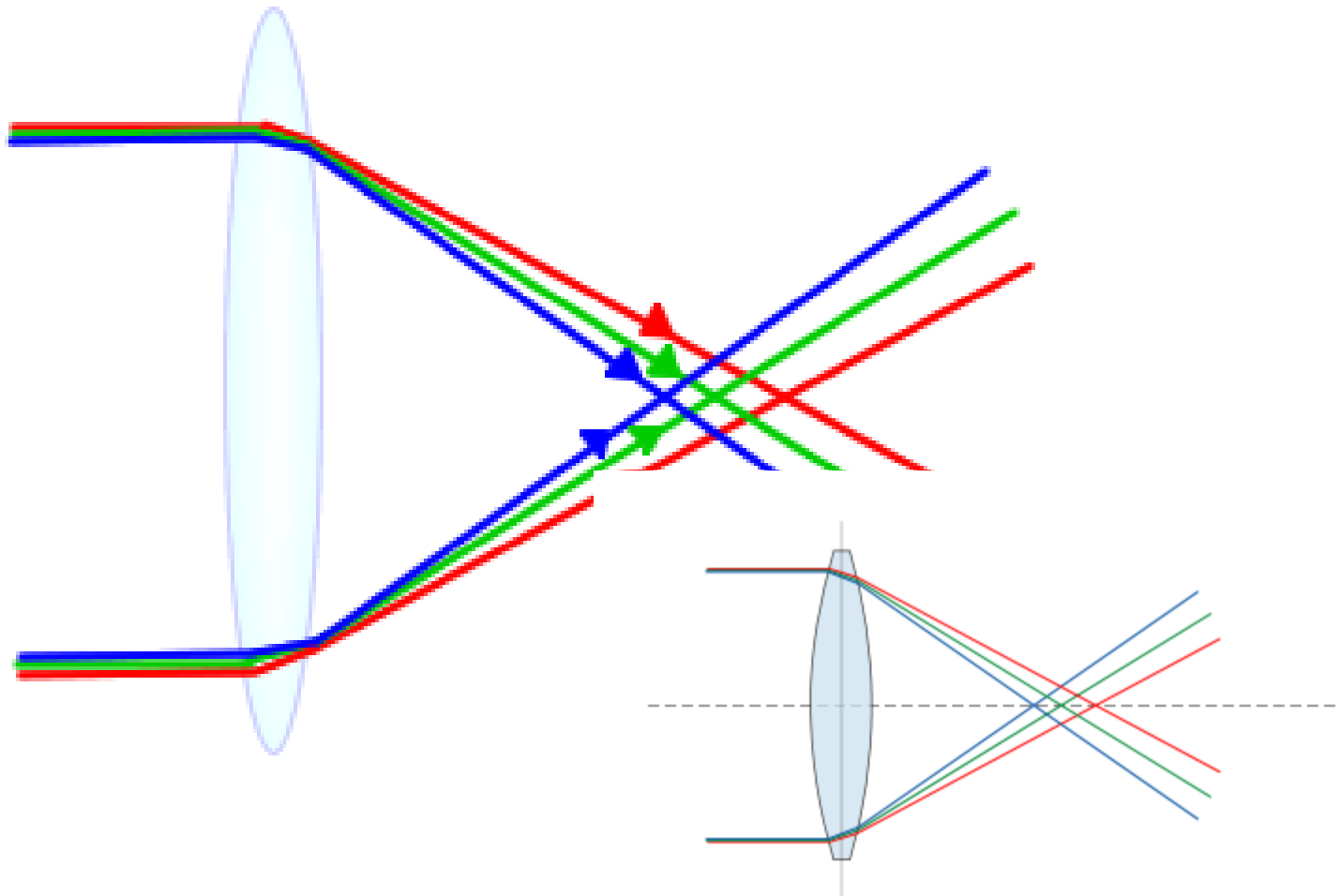
$$\frac{1}{f} = \frac{1}{f_1} + \frac{1}{f_2} - \frac{s}{f_1 f_2} .$$



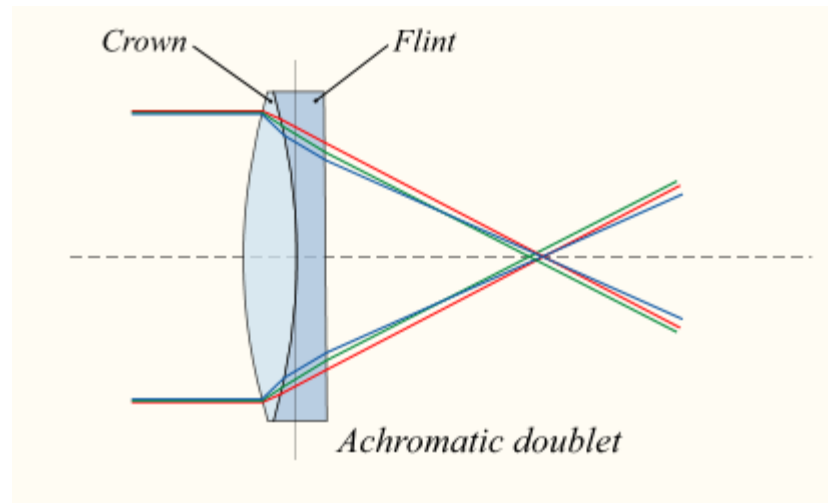
Fotoapararat - sestava



Kromatična aberacija

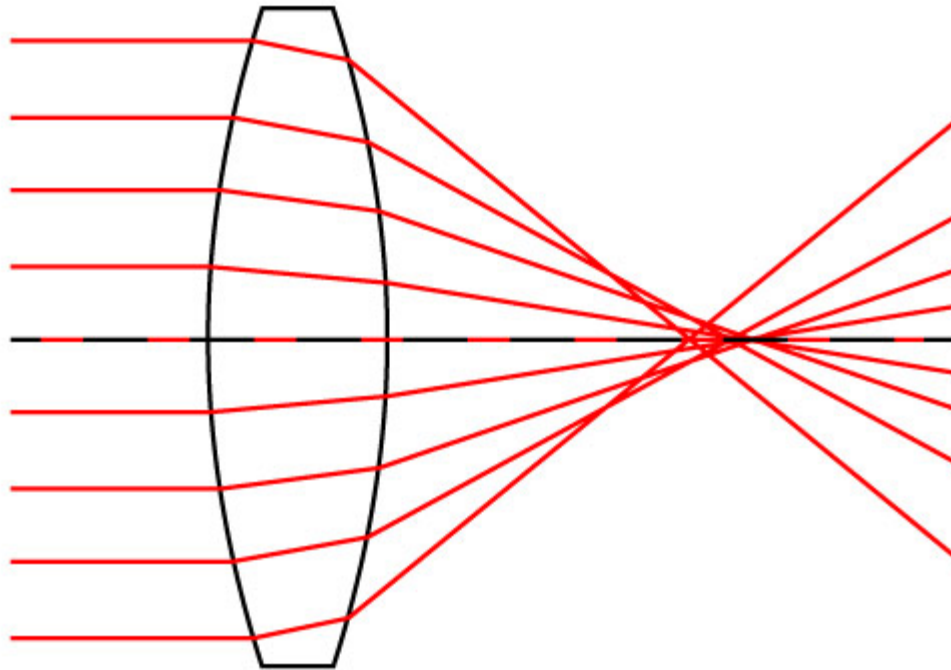


Kromatična aberacija



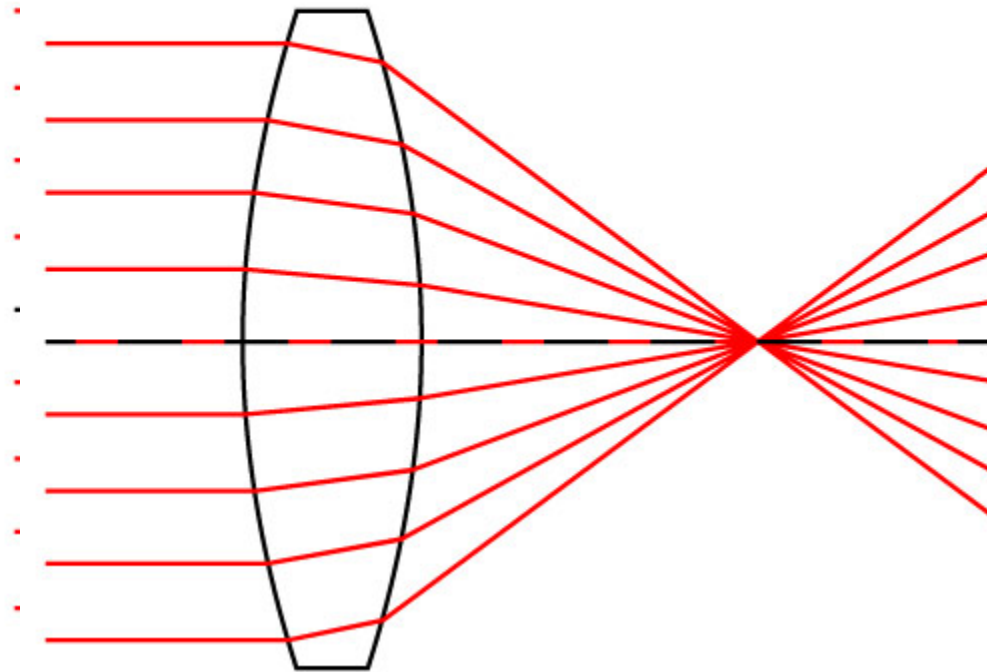
Sferična aberacija

Lens with
Spherical Aberration



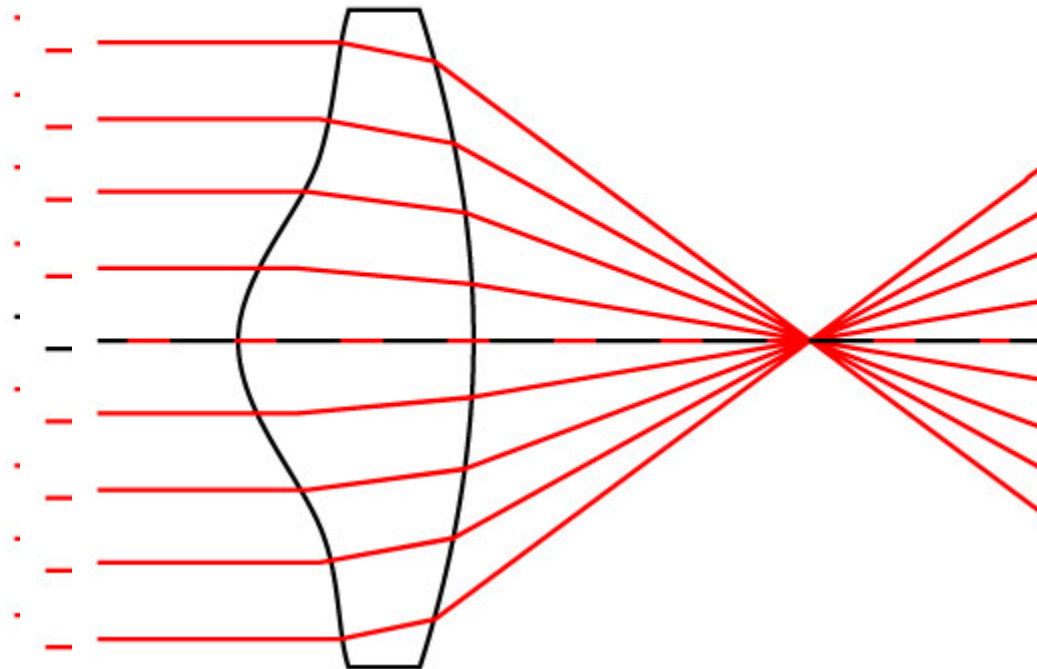
Sferična aberacija

Perfect Lens with no
Spherical Aberration

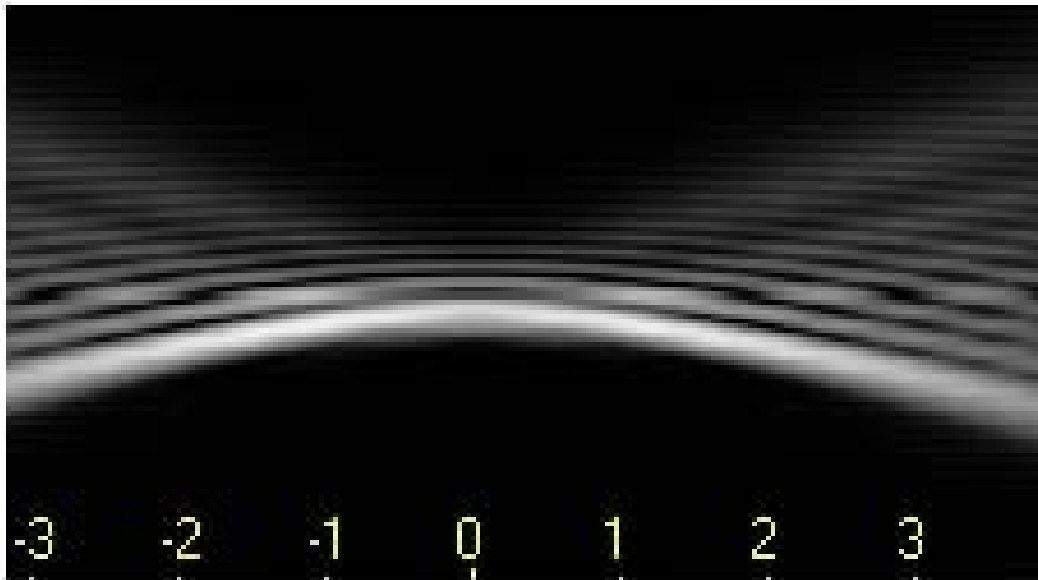
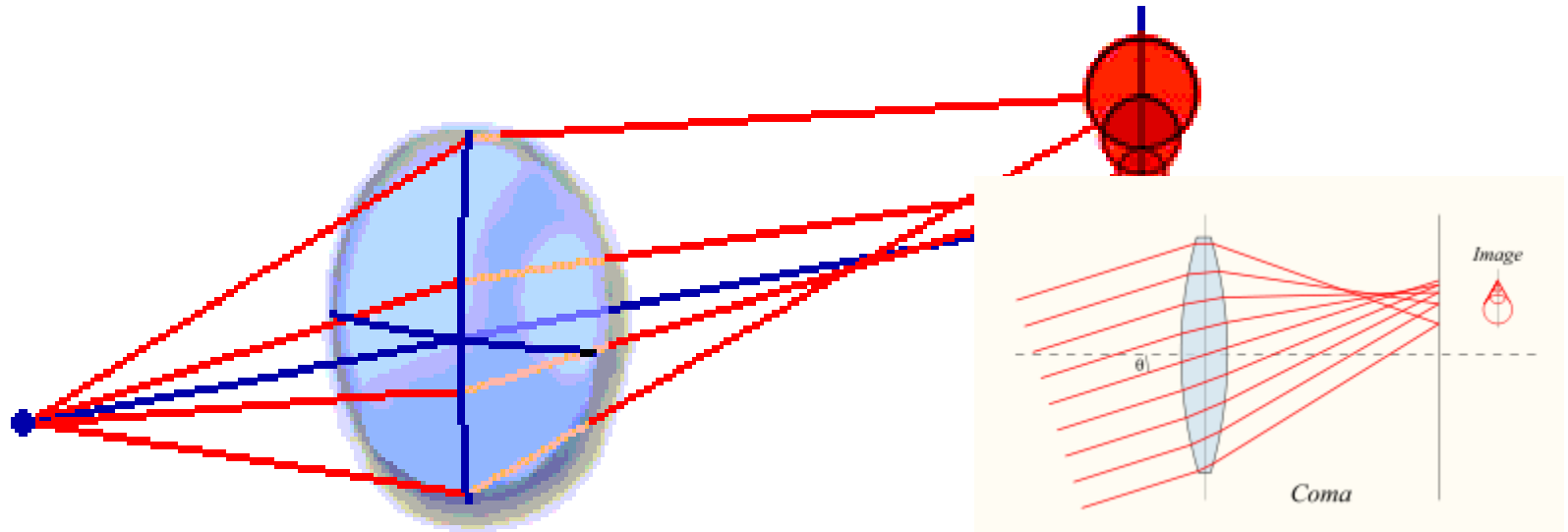


Sferična aberacija

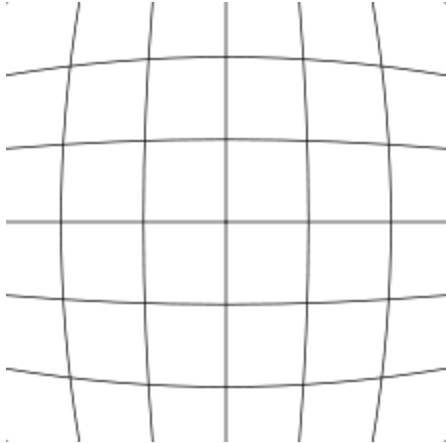
Perfect Lens with no
Aspherical Lens



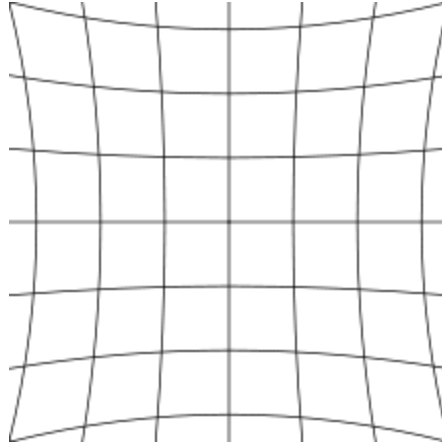
Koma



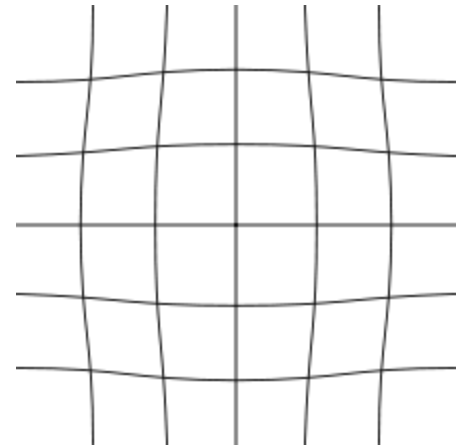
Distorzija



sodček



blazina



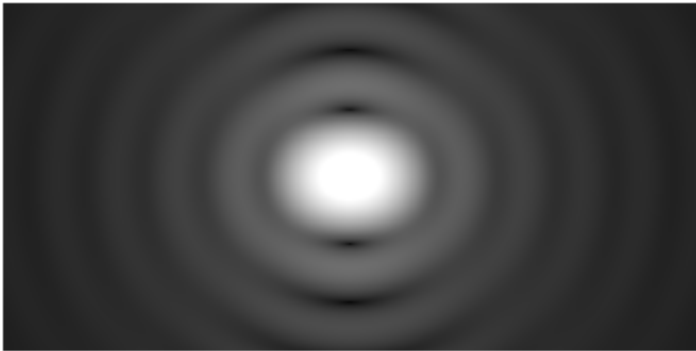
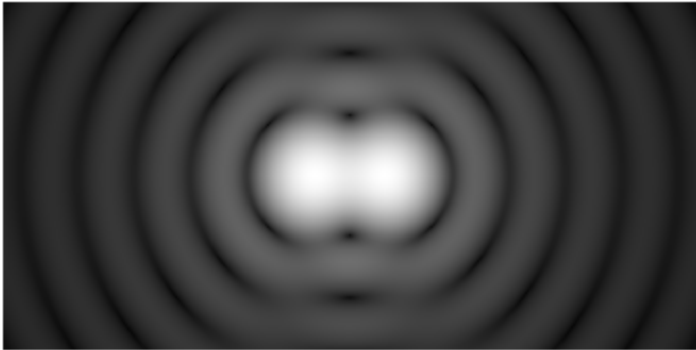
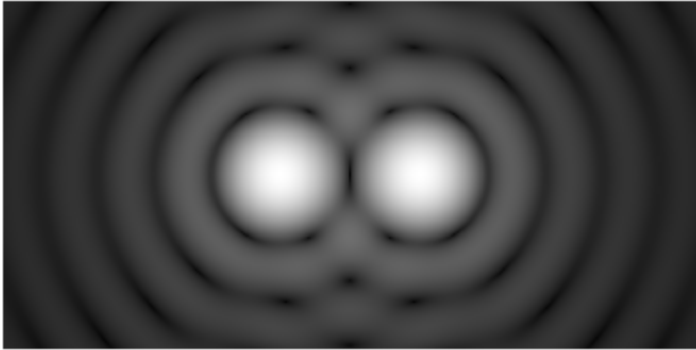
muštace

Zaslonsko število

$$N = \frac{f}{D}$$

f/No.: 0.7, 1.0, 1.4, 2, 2.8, 4, 5.6, 8, 11,
16, 22, 32, 45, 64, 90, 128, 180, 256

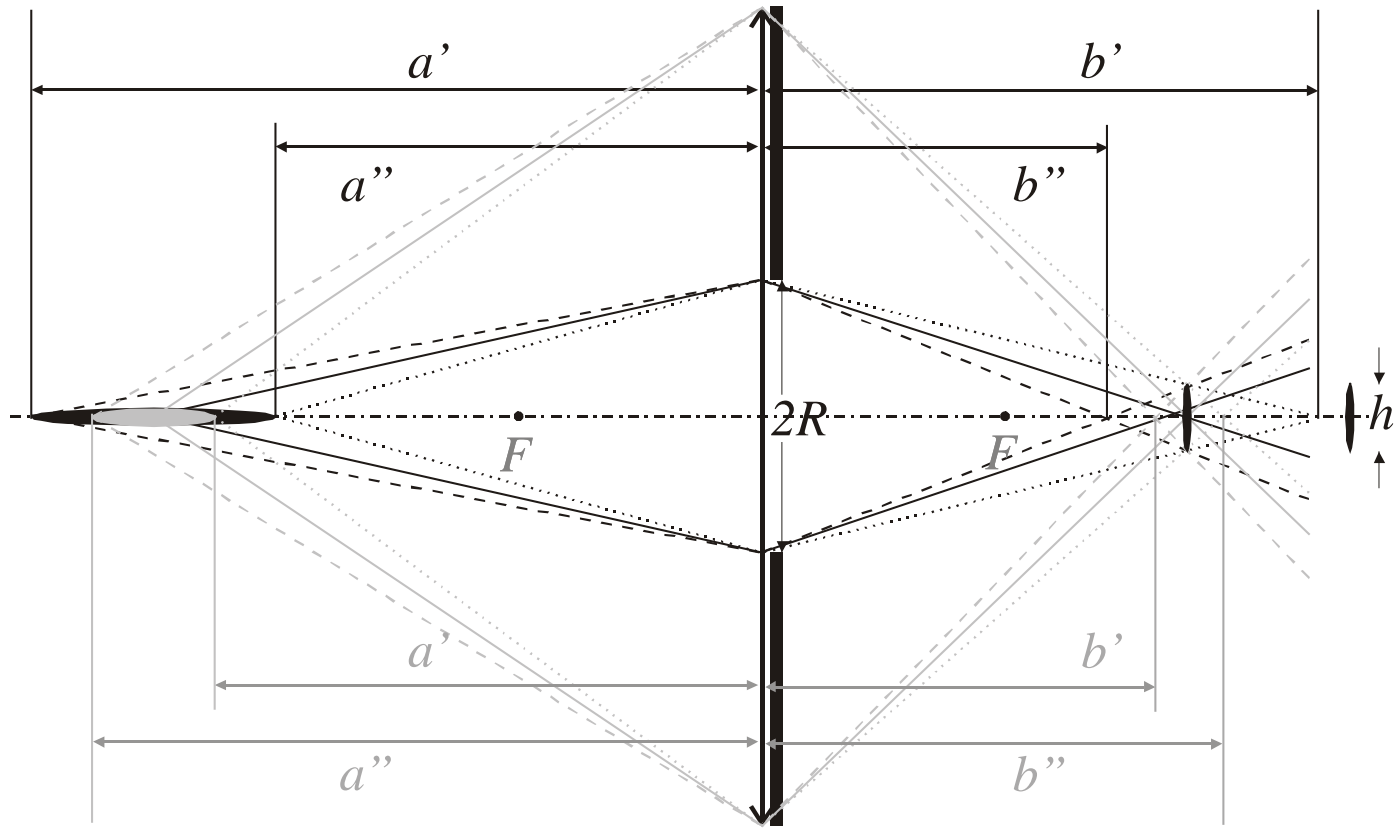
Ločljivost leče



$$\sin \theta = 1.22 \frac{\lambda}{d}$$

Rayleighov kriterij

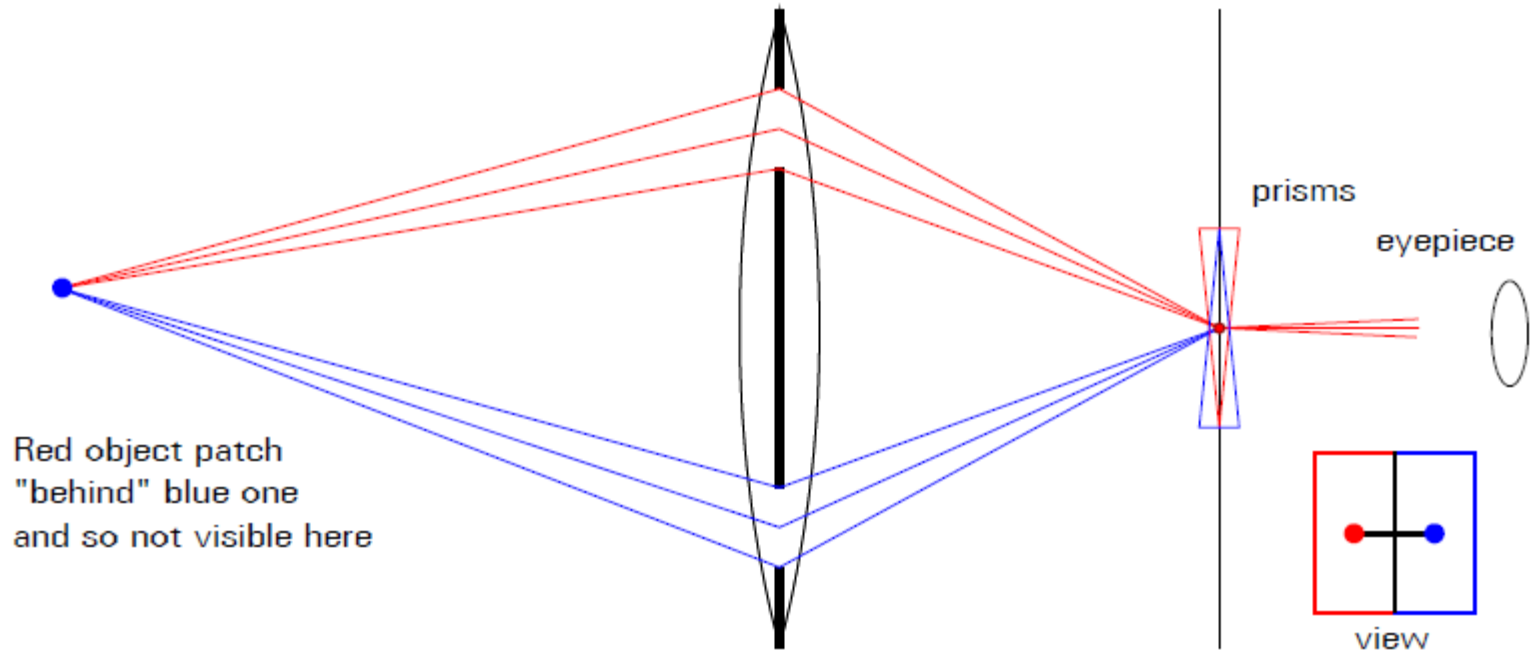
Globinska ostrina



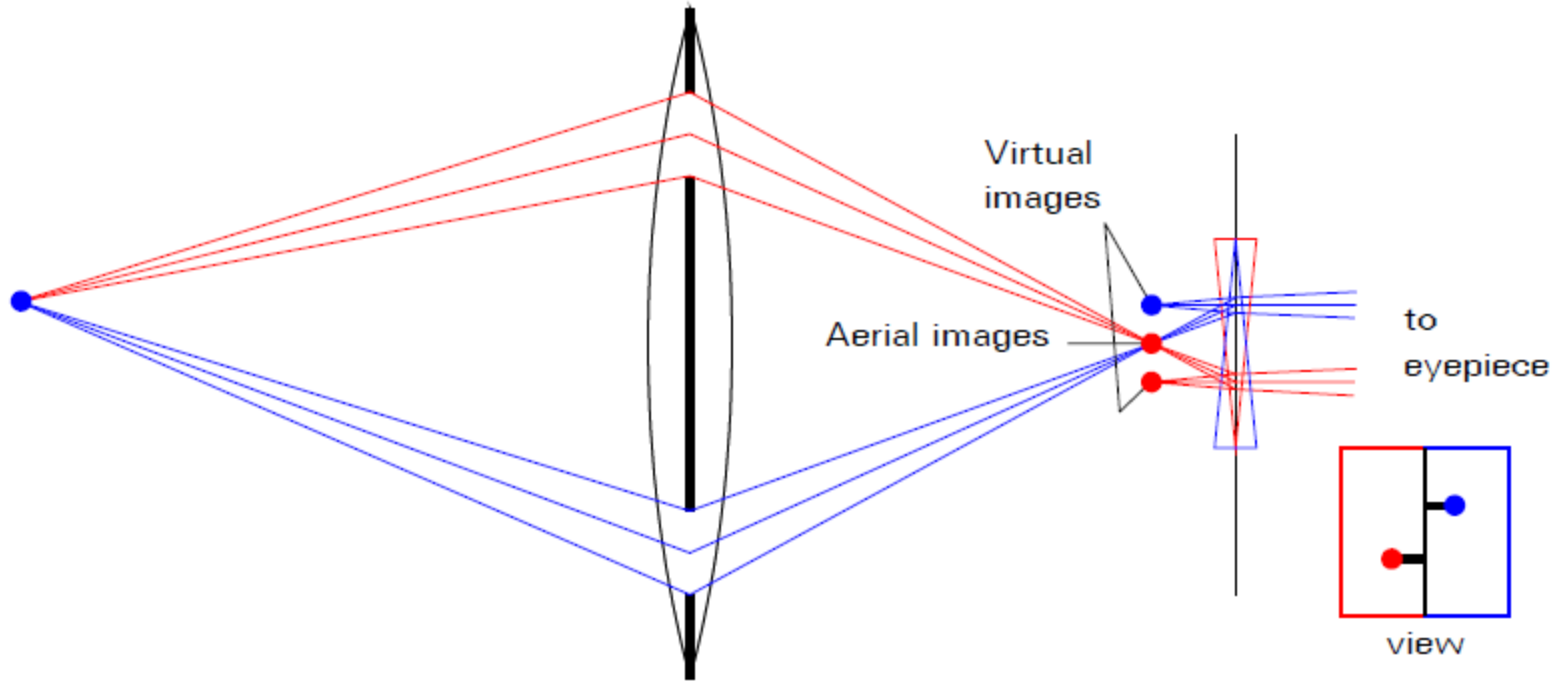
$$a' = \frac{af^2}{f^2 + zh(a - f)} ;$$

$$a'' = \frac{af^2}{f^2 - zh(a - f)}$$

Fokus

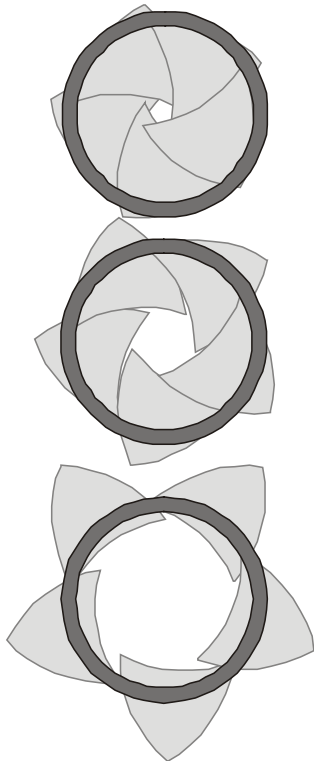


Fokus



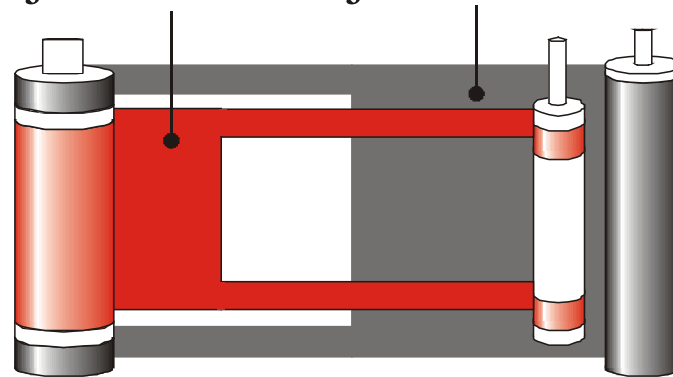
zaklop

Lamelni zaklop

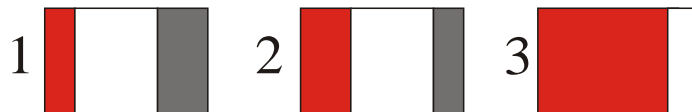


Zavesni zaklop

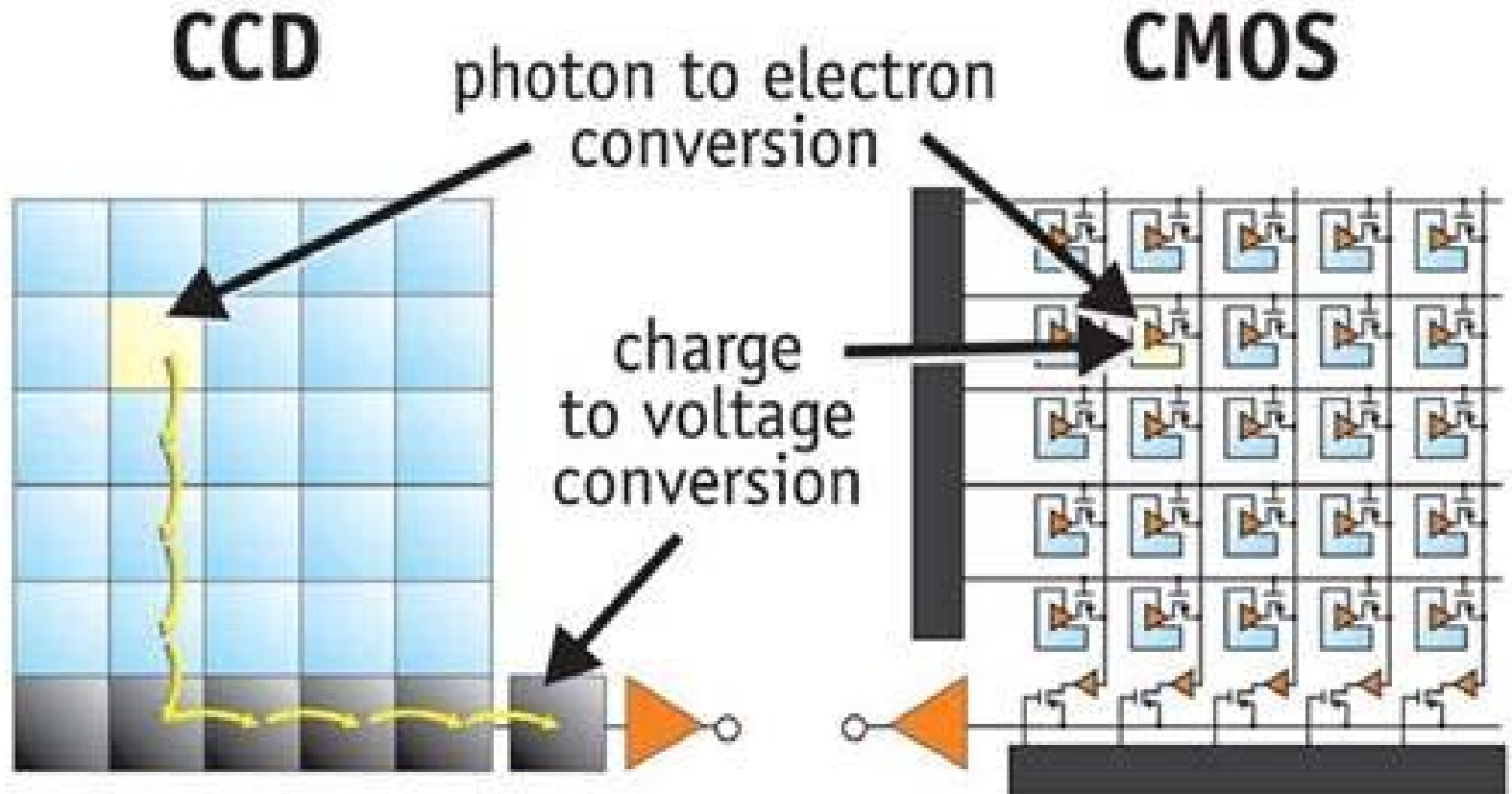
zadnja sinhronizacija prednja sinhronizacija



odvijanje zaves →



Ccd/cmos



Pomen oznak

