WeCAPP - Wendelstein Calar Alto Pixellensing Project

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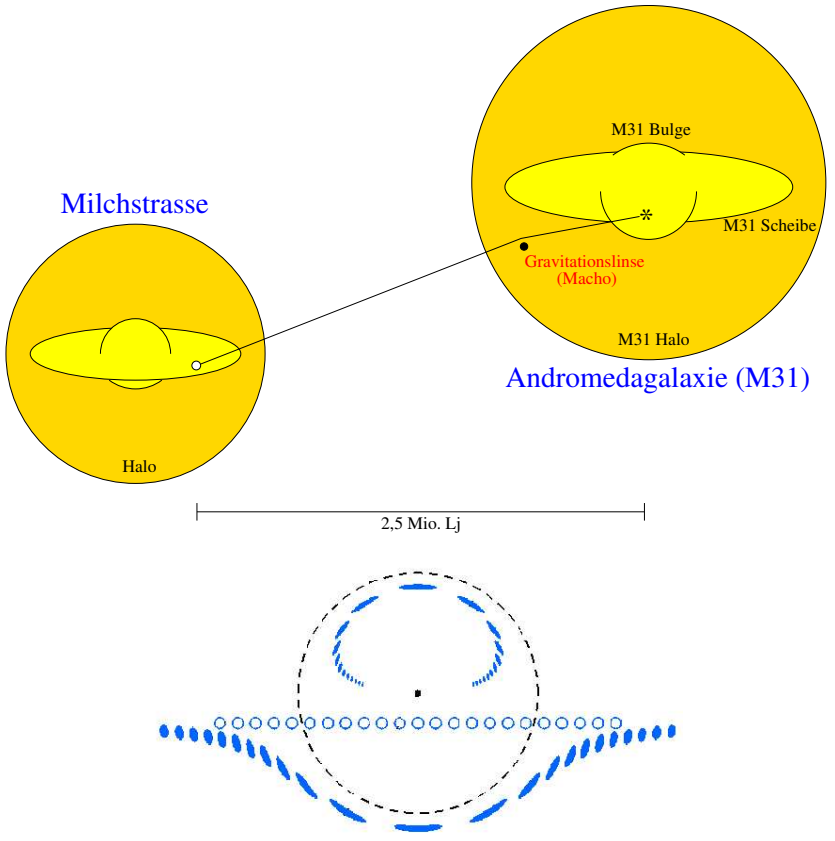
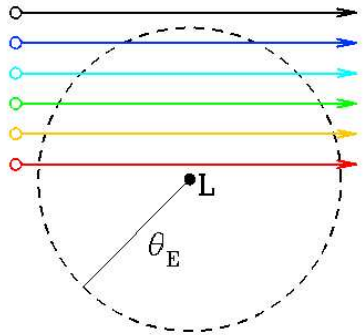
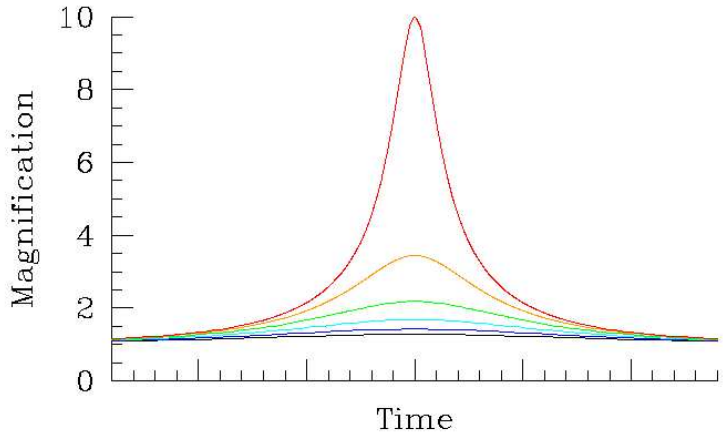
MACHOs and microlensing



background source (blue) passing behind a gravitational microlens (black)



different approach of source star and lens

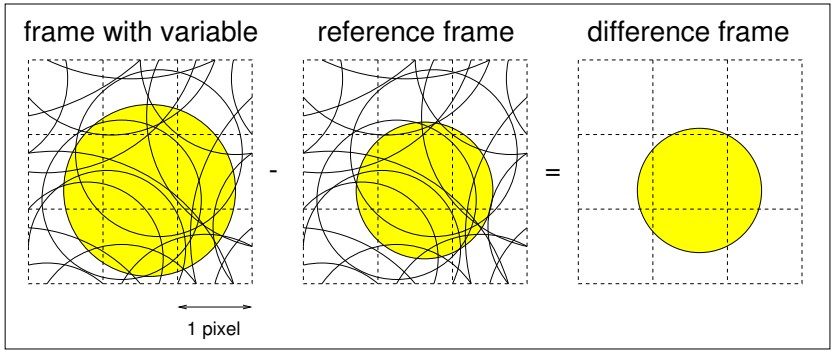


brightness as a function of time

Pixellensing

- register **two** CCD **images** at different times
- **preprocess** images
- **subtract** the two frames
- **isolated** positive or negative **sources**

even in highly crowded fields:

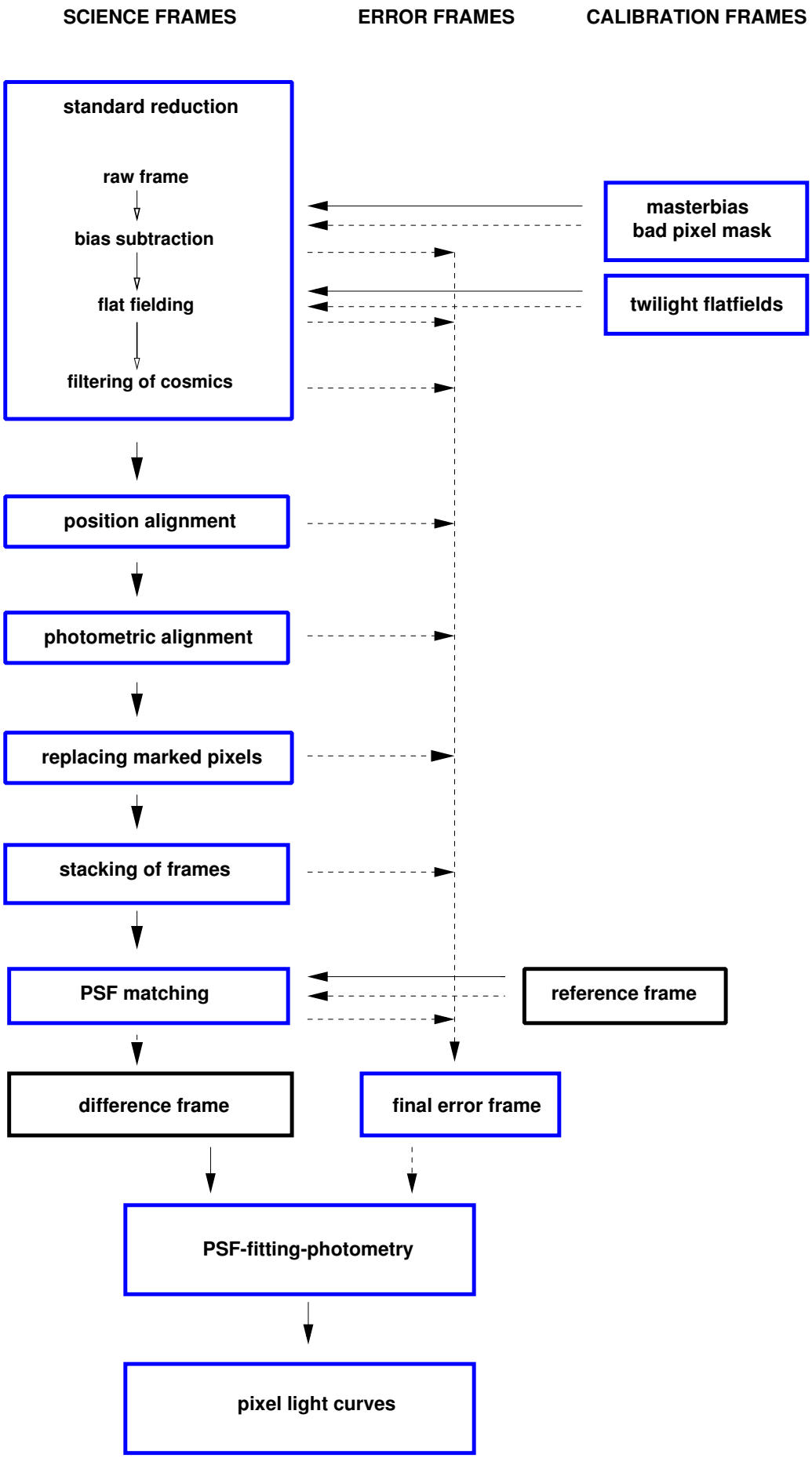


to distinguish variable stars from **microlenses** $\Rightarrow$ measure the **light curves**:

light curve for microlensing event:

- symmetric
- achromatic
- only one maximum

Observations


SCIENCE FRAMES
ERROR FRAMES
CALIBRATION FRAMES
standard reduction
raw frame
bias subtraction
flat fielding
filtering of cosmics
masterbias
bad pixel mask
twilight flatfields
position alignment
photometric alignment
replacing marked pixels
stacking of frames
PSF matching
reference frame
difference frame
final error frame
PSF-fitting-photometry
pixel light curves