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THE APERTURE INVARIANT IN ASTROPHOTOGRAPHY

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In classical astrophotography tree classes of object are present: point-like, non point-like and moving sources. In theoretical astrophotography formulas are obtained for optimal exposition, begining with peculiarity of each class (Tomić, 1995).

The geometrical parametres of camera appear different for each class of objects. Here we started from most general view, that in correct photographic process there exists one invariant, independent of the type of object, and which must determine the manner of deposition for geometrical parametres of objective.

This invariant is in physical contents the amount of arrived energy per square meter. It can be expressed in the form (like Schwarzschild's):

$$[A/D^2](Et)^p = \text{const.}$$

where: A – the surface of image, D – the diameter of objective, E – the luminosity of photographed object, and t – the duration of exposure, p – the Schwarschild's exponent.

$$[F^i/D^2](Et)^p) = \text{const.} \quad i = 0, 1, 2.$$

where by F the focal length of objective is denoted. From this formula, searched for relations for optimal exposition can be obtained uniformly and easily, in the same form.

References

Tomić, A.: 1995, *Publ. Obs. Astron. Belgrade*, **45**, 29-76.