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Optical systems of space lenses 9

***Abstract***

***Some optical schemes of objectives for space application developed by the author are considered. Comparison of the main optical characteristics of various telescopes architecture is carried out. Examples of objectives optical systems calculation applied to various tasks both in the field of astronomy and in the field of remote sensing of the earth are given. Practical recommendations about development and use of telescope objectives are given.***

***Keywords: lens, telescope, satellite, aberrations, optical system, optimization, bandwidth.***

***References***

1. *Milton Laikin*, “Lens Design”, Fourth Edition, CRC Press 2006.

2. *Rudolph Kingslake, R. Barry Johnson*: Lens Design Fundamentals, Academic Press is an

imprint of Elsevier, 2010.

3. *Nagata Y.* (2004) The Lens Design Using the CMA-ES Algorithm. In: Deb K. (eds) Genetic and Evolutionary Computation – GECCO 2004. GECCO 2004. Lecture Notes in Computer Science, vol 3103. Springer, Berlin, Heidelberg.

4. *Julie Beaulieu, Christian Gagn´e, Marc Parizeau*, Lens System Design and Re-Engineering with Evolutionary Algorithms / Proc. of GECC0 2002, July 9-13, New York.

5. *M. van Turnhout, P. van Grol, F. Bociort, and H.P. Urbach*, Obtaining new local minima in lens design by constructing saddle points, Opt. Express 23, 6679- 6691 (2015).

6*. Бирючинский С.Б.* Моделирование и оптимизация архитектуры оптических систем для современного кинематографа / Мир Техники Кино. – 2015-3(9).

7. *Elvira Rachim et al*, Preliminary of Optical Lens Design for Micro-Satellite, 2017 IOP Conf. Ser.: Earth Environ. Sci. 54 012095.

8. *Ho Jin et al,* Optical Design of a Reflecting Telescope for CubeSat. Journal of the Optical Society of Korea 17(6), 2013.

9. Патент РФ: № 2443005, 2012.

10. Патент РФ: № 2584382, 2016.