Design and manufacture of aspherical mirrors for the implementation of a classic Cassegrain astronomical telescope

P. Gallardo*, A. Romero, A. Escudero, F. Gonzales

Departamento de Ciencias, Pontificia Universidad Católica del Perú, Lima, Perú

(*)E-mail: a20206447@pucp.edu.pe

This work presents the processes of design, manufacturing, and optical testing of aspheric mirrors (paraboloids and hyperboloids) for the implementation of a classical Cassegrain astronomical telescope [1]. The work begins with the simulation of the optical system using Ansys Zemax OpticStudio (student version), where the behavior of the system components (mirrors) is evaluated. This is followed by the manufacturing process of the mirrors according to the design specifications. Subsequently, the final shapes of the reflective optical surfaces (mirrors) are assessed, and a metallic thin film is applied. Finally, the proposed system is assembled, and its performance is evaluated [2,3]. The material used to fabricate the mirrors is Pyrex glass.

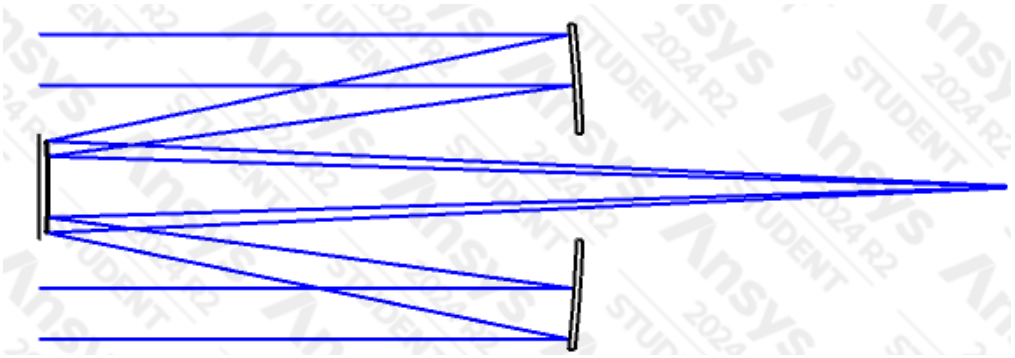

Figure 1. The simulation of the proposed telescope is shown.

References

[1] Rutten H., Van Venrooij M. (1988) *Telescope Optics.* Willmann_Bell, Inc.

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