Astronomical Telescopes and Instruments 2014: Exercises on Thin Films (Due on 15 October 2014 at 13:45)

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1 Anti-Reflection Coating

Determine the thickness of a single MgF_2 (n=1.37) layer to minimize the reflectivity of an air to glass (n=1.55) interface at an angle of incidence of 45 degrees.

2 Reflectivity of Metal Coating

Calculate the reflectivity of an aluminum mirror at normal incidence at wavelengths of 400 nm (n=0.52135, k=5.000), 850 nm (n=2.6945, k=8.1878), and 1650 nm (n=1.5782, k=15.656).