

HOMEWORK SET 1

Due September 14, Monday

- (1) Use data of the diameter and average distance of the Sun and Moon, find the angular size (**in units of arcsecond and in degree**) of the Sun and the Moon viewed from the Earth. The Sun's and the Moon's data are given at Table Solar System Data (Appendix C: A-1).
- (2) When the Moon is at apogee, what is the angular size of the Moon? If the Moon is lined up with the Sun, what phenomenon will be observed by an observer on Earth?
- (3) Estimate the minimum aperture of a ground-based telescope to resolve a feature on the Moon with a size of 46.7 m in the visible (at 500 nm). Please ignore the influences coming from the Earth atmosphere turbulence and the static aberration of telescope. The average distance from Earth to Moon is 237,700 miles. How about resolving the same target in the near infrared at 1.5 micron.