

**HONR 229Q “The Light Fantastic”
Take-Home Final Examination**

Due Friday, December 19, 2003

Answer all questions. Do not write more than 1 page for each answer. Pictures can be included and do not count towards the one page limit per answer. Don't go crazy. Clear, but precise, short answers are appreciated. Cite your sources of information

- (1) Explain why the stars twinkle at night
- (2) How does the Keck telescope work?
- (3) Explain the key features of two classic astronomical telescope designs
- (4) Explain the origin of the Parry arcs
- (5) How does a “borescope” work?
- (6) Laser treatment for kidney stones
- (7) Why is the image in binoculars not upside down and reverted?
- (8) Light scattering from dust in the atmosphere
- (9) Why thin films of oil on a wet pavement show spectral colors
- (10) Are photons “real”?