

**AST 250 – Spring 2019**  
**Homework Due: Wednesday March 27**

28. (a) Imagine you observed two objects in the outer/extended Kuiper Belt from the Earth when they are at opposition. One object is 50 AU from the Earth, the second object is 100 AU from the Earth. If both objects have the same albedo,  $A = 0.5$ , and the same size (500 km), then what is their flux ratio in reflected visible light observed from the Earth (quote closer object/farther object)? Also calculate their apparent magnitude difference (closer – farther object).
- (b) Now imagine the two objects are at the same distance of 50 AU. What if the first object has an albedo  $A = 0.1$  and the second object has an albedo  $A = 0.9$ . What ratio of radii (object 1/object 2) would make them have the same  $m_v$  as seen from the Earth?

