

Observational Astronomy - Spring 2014

Homework 8 - Stars II

1. What are the three types of stars that represent the end-points of stellar evolution? These are where stars end up after they have burned their nuclear fuel. List them in order from the largest to the smallest.
2. We said an approximate way to view the size of the event horizon of a black hole is when the escape velocity, given by $V = \sqrt{2GM/R}$ is equal to the speed of light. Given this, how small would we have to compress the Earth to make it a black hole?
3. Where were elements heavier than helium, such as the elements that make up the Earth, or the carbon in your body, produced?
4. What do we call the explosion that results when a massive star reaches the end of its life? Will all stars produce these explosions? If not, what is required to produce them?
5. About how old is the sun? About how much longer do we expect it to live? Describe the stages it will go through at the end of its life. How will these events impact life on Earth?
6. How were the first neutron stars discovered? What type of instrument was used to observe these objects?