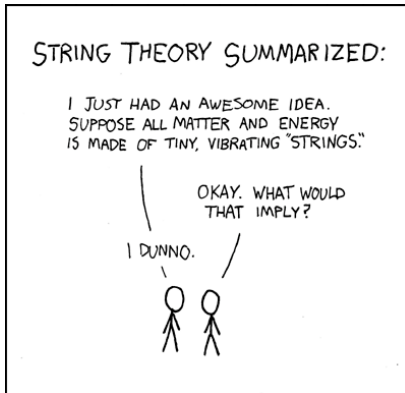


Astronomy 330

Review Exam 1



Exam 1 tomorrow

Next Week Presentations

Will Hanhe & Brandon Copp

Manuel Sahagun & Taewoo Kim

HW #2 - Section 4

- **Ryan Olliqes:**
<http://ufo.whipnet.org/alien.races/space.travel/index.html>
- **Kevin DeHoff:**
<http://www.cropcircleresearch.com/>
- **Adam Musto:**
http://www.alien-ufo-pictures.com/absolute_proof_alien_exist.html

Exam 1

- 35 MC questions in the classroom on Thursday!
 - Plus 2 extra credit (possible score of 105)
- You can bring 1 sheet of paper with notes
- Will cover material up to and including Thursday's lecture, Feb 18th
- Major resources are lecture and discussion notes, in-class questions, and homework.
- Questions?

Key Ideas

- Drake equation
- Cosmology
 - Evolution, dark matter, dark energy
- Stellar system
 - Evolution of stars and planets
- Earth
 - Evolution of Earth, important elements for life on Earth

Cosmology

- Hubble's Law
 - How was it discovered?
 - What does it tell us about how galaxies move?
 - What does it mean?
- Big bang
 - What is it?
 - Where and when did it happen?
 - Expanding into what?
 - What are the three main pieces of evidence?
 - What holds Galaxies together?
 - What is the Big Rip? Why is it unlikely to happen?

Cosmology Continue....

- Write down major events
 - First instant (no idea what's was going on)
 - The GUT era (quark fluctuations)
 - Inflation (quick increase of size)
 - Quark confinement
 - Annihilation of antimatter
 - Era of recombination
 - The Dark Ages
 - The first stars

Cosmology Continue....

- A brief history of time
 - What are the major trends? Temperatures? Elements?
 - CMB
 - What are those small fluctuations, where did they come from, and what do they do?
 - What is a quark?
 - Why do we assume a homogenous and isotropic Universe?
- The fate of the Universe
 - Three fates (Which is ours? How do we know?)
 - In the end, what will determine the fate of the Universe.
 - Dark matter: What is it? Evidence?
 - Dark energy: What is it? Evidence?

Stellar System

- What is a star?
- The life of a star
 - What is the fusion processes in the star?
 - What is nuclear strong force and why is it important?
 - What is hydrostatic equilibrium?
 - How does the universe make heavy elements?
 - How do we know that the Sun is at least a 3rd generation star?
 - Compare the lifespan of a massive star and a low-mass star.
 - Compare the burning cycle of a massive star.
 - What is a supernova?
 - How does the Sun's fusion change as it ages?
 - What is the fate of the Sun? What will it eventually turn into to?

Stellar System

- Star Formation
 - Molecular cloud: What is it?
 - Circumstellar disk: Why is it a disk?
 - What are steps of star formation? Structures?
 - Planets: Why are our planets different? Why are planets so similar in their orbits?
 - How are stars forming today different than the first stars?
 - What happened to Pluto?

Group Discussion

- Drake Equation
 - Write down the Drake Equation
 - What does each term mean?
 - How do we determine each term? (Those covered so far.)

Misc

- What is light? What is a light year?
- What are molecules? Why are they good for life?
- What lessons do we learn from interstellar molecules?
- What is Panspermia? What is evidence that this might happen? What is a fact that makes it unlikely?
- What are the facts used to estimate R_* ?
- What is a proton?
- What are some descriptions of pseudoscience?
- Where did the 4 elements of HONC come from?
- What is a day, month, and year?