



So... where is everybody?

Some final LIU N190 thoughts...

First we must dismiss UFO's...



Extraordinary claims require
extraordinary evidence

To be scientifically acceptable, evidence
must be:

Clear, repeatable, irrefutable, consistent

UFO sightings have not risen to the
level of science.

But wait...what about those crop circles?

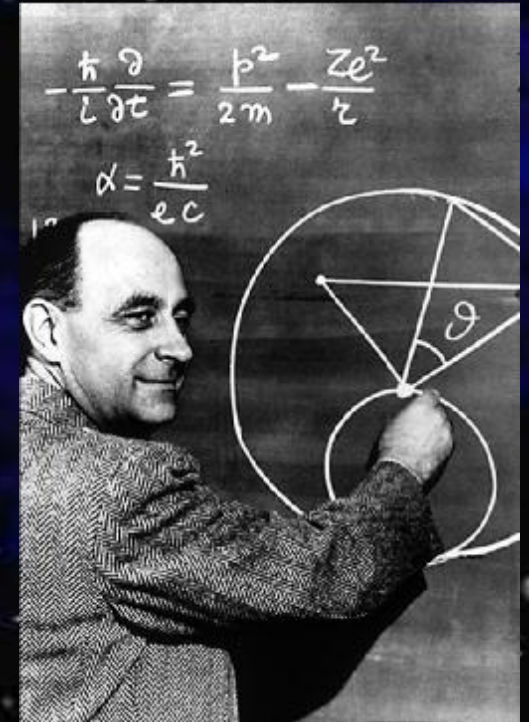


WHERE ARE THEY?

Fermi Paradox (Enrico Fermi)

n If the existence of intelligent life in the universe is favorable...

then where is everybody?



WHERE ARE THEY?

- n It is believed that we are biological “late comers” onto the scene.
- n If civilizations are common, many should have arisen long before us (by as much as billions of years!).
- n Galactic colonization should have occurred.
Ex: 1% c travel could colonize entire galaxy in 100 million years

WHERE ARE THEY?

Could be several reasons:

1. Maybe we ARE alone
(SETI is a waste)

n Maybe we are the first... or
the latest civilization

n Then we are unique and
quite remarkable!



WHERE ARE THEY?

2. Other civilizations exist but are not interested in exploration, colonization or communication. (SETI is a waste)

n Technological difficulties: Difficulty of interstellar travel discourages interstellar travel

n Sociological considerations (no desire to explore)

n Self destruction

WHERE ARE THEY?

3. There is a galactic civilization, but is deliberately avoiding us

n the Prime Directive or "zoo hypothesis"



§ The Sentinel Hypothesis (2001 Space Odyssey, Contact)

SEMESTER SUMMARY

The origin of life might be reasonably common

n The material of life is common

n The energy of life is universal

n Chemical nature of the origin of life

n Environments similar to the earth might be reasonably common

n Stars are numerous, the Universe is VAST

SEMESTER SUMMARY

Stars are incredibly numerous

- n Occasional success in formation of intelligent life could lead to many different civilizations

The search for Life is in it's infancy

- n New technology awaits us

Interstellar travel is daunting

- n Might prohibit visitation of alien worlds or by aliens
- n Perhaps many others have tried and failed?

**Absence of evidence is NOT
evidence of absence.**

**“The probability of success is
difficult to estimate; but if we
never search, the chance of
success is zero.**

-Phillip Morrison 1959

What if we succeed

- Protocols are actually in place for this contingency and adapted by most groups performing SETI
 1. Work hard at verifying detection at discovery site (mindful of potential hoaxes)
 2. Independent confirmation
 3. Use the IAU Telegram system to alert observatories world wide
 4. Tell the world
 5. Make discovery data available for inspection
 6. Make no reply until global consensus
 7. What are cultural impacts of a detection?

6. Make no reply until global consensus

- How likely is this really?
- More difficult question....who speaks for earth?
- What do we say?
- How do you enforce a ban on transmissions?
- Plans were made to internationalize this work but plans fell victim to termination by NASA's SETI project