Evidence For Design In The Universe

1. Gravitational coupling constant	If larger:	No stars less than 1.4 solar masses, hence short stellar life spans
	If smaller:	No stars more than 0.8 solar masses, hence no heavy element production
2. Strong nuclear force coupling constant	If larger:	No hydrogen; nuclei essential for life are unstable
	If smaller:	No elements other than hydrogen
3. Weak nuclear force coupling constant	If larger:	All hydrogen is converted to helium in the big bang, hence too much heavy elements
	If smaller:	No helium produced from big bang, hence not enough heavy elements
4. Electromagnetic coupling constant	If larger:	No chemical bonding; elements more massive than boron are unstable to fission
	If smaller:	No chemical bonding
5. Ratio of protons to electrons formation	If larger:	Electromagnetism dominates gravity preventing galaxy, star, and planet formation
	If smaller:	Electromagnetism dominates gravity preventing galaxy, star, and planet formation
6. Ratio of electron to proton mass	If larger:	No chemical bonding
	If smaller:	No chemical bonding
7. Expansion rate of the universe	If larger:	No galaxy formation
	If smaller:	Universe collapses prior to star formation
8. Entropy level of universe	If larger:	No star condensation within the proto-galaxies
	If smaller:	No proto-galaxy formation
9. Mass density of the universe	If larger:	Too much deuterium from big bang, hence stars burn too rapidly
	If smaller:	No helium from big bang, hence not enough heavy elements
10. Age of the universe	If older:	No solar-type stars in a stable burning phase in the right part of the galaxy
	If younger:	Solar-type stars in a stable burning phase would not yet have formed
11. Initial uniformity of radiation	If smoother:	Stars, star clusters, and galaxies would not have formed
	If coarser:	Universe by now would be mostly black holes and empty space
12. Average distance between stars	If larger:	Heavy element density too thin for rocky planet production
	If smaller:	Planetary orbits become destabilized
13. Solar luminosity	If increases too soon:	Runaway green house effect
	If increases too late:	Frozen oceans
14. Fine structure constant*	If larger:	No stars more than 0.7 solar masses
	If smaller:	No stars less then 1.8 solar masses
15. Decay rate of the proton	If greater:	Life would be exterminated by the release of radiation
	If smaller:	Insufficient matter in the universe for life
16. ^{12}C to ^{16}O energy level ratio	If larger:	Insufficient oxygen
	If smaller:	Insufficient carbon

*(A function of three other fundamental constants, Planck's constant, the velocity of light, and the electron charge each of which, therefore, must be fine-tuned)

17. Decay rate of ^{8}Be	If slower: Heavy element fusion would generate catastrophic explosions in all the stars If faster: No element production beyond beryllium and, hence, no life chemistry possible
18. Mass difference between the neutron and the proton	If greater: Protons would decay before stable nuclei could form If smaller: Protons would decay before stable nuclei could form
19. Initial excess of nucleons over anti-nucleons	If greater: Too much radiation for planets to form If smaller: Not enough matter for galaxies or stars to form
20. Galaxy type	If too elliptical: Star formation ceases before sufficient heavy element build-up for life chemistry If too irregular: Radiation exposure on occasion is too severe and/or heavy elements for life chemistry are not available
21. Parent star distance from center of galaxy	If farther: Quantity of heavy elements would be insufficient to make rocky planets If closer: Stellar density and radiation would be too great
22. Number of stars in the planetary system	If more than one: Tidal interactions would disrupt planetary orbits If less than one: Heat produced would be insufficient for life
23. Parent star birth date	If more recent: Star would not yet have reached stable burning phase If less recent: Stellar system would not yet contain enough heavy elements
24. Parent star mass	If greater: Luminosity would change too fast; star would burn too rapidly If less: Range of distances appropriate for life would be too narrow; tidal forces would disrupt the rotational period for a planet of the right distance; uv radiation would be inadequate for plants to make sugars and oxygen
25. Parent star age	If older: Luminosity of star would change too quickly If younger: Luminosity of star would change too quickly
26. Parent star color	If redder: Photosynthetic response would be insufficient If bluer: Photosynthetic response would be insufficient
27. Supernovae eruptions	If too close: Life on the planet would be exterminated If too far: Not enough heavy element ashes for the formation of rocky planets If too infrequent: Not enough heavy element ashes for the formation of rocky planets If too frequent: Life on the planet would be exterminated
28. White dwarf binaries	If too few: Insufficient fluorine produced for life chemistry to proceed If too many: Disruption of planetary orbits from stellar density; life on the planet would be exterminated
29. Surface gravity (escape velocity)	If stronger: Atmosphere would retain too much ammonia and methane If weaker: Planet's atmosphere would lose too much water
30. Distance from parent star	If farther: Planet would be too cool for a stable water cycle If closer: Planet would be too warm for a stable water cycle
31. Inclination of orbit	If too great: Temperature differences on the planet would be too extreme
32. Orbital eccentricity	If too great: Seasonal temperature differences would be too extreme

33. Axial tilt	If greater: If less:	Surface temperature differences would be too great Surface temperature differences would be too great
34. Rotation period	If longer: If shorter:	Diurnal temperature differences would be too great Atmospheric wind velocities would be too great
35. Gravitational interaction with a moon	If greater: If less:	Tidal effects on the oceans, atmosphere, and rotational period would be too severe Orbital obliquity changes would cause climatic instabilities
36. Magnetic field	If stronger: If weaker:	Electromagnetic storms would be too severe Inadequate protection from hard stellar radiation
37. Thickness of crust	If thicker: If thinner:	Too much oxygen would be transferred from the atmosphere to the crust Volcanic and tectonic activity would be too great
38. Albedo (ratio of reflected light to total amount falling on surface)	If greater: If less:	Runaway ice age would develop Runaway greenhouse effect would develop
39. Oxygen to nitrogen ratio in atmosphere	If larger: If smaller:	Advanced life functions would proceed too quickly Advanced life functions would proceed too slowly
40. Carbon dioxide level in atmosphere	If greater: If less:	Runaway greenhouse effect would develop Plants would not be able to maintain efficient photosynthesis
41. Water vapor level in atmosphere	If greater: If less:	Runaway greenhouse effect would develop Rainfall would be too meager for advanced life on the land
42. Ozone level in atmosphere	If greater: If less	Surface temperatures would be too low Surface temperatures would be too high; there would be too much uv radiation at the surface
43. Atmospheric electric discharge rate	If greater: If less:	Too much fire destruction would occur Too little nitrogen would be fixed in the atmosphere
44. Oxygen quantity in atmosphere	If greater: If less:	Plants and hydrocarbons would burn up too easily Advanced animals would have too little to breathe
45. Oceans to continents ratio	If greater: If smaller:	Diversity and complexity of life-forms would be limited Diversity and complexity of life-forms would be limited
46. Soil materializations	If too nutrient poor: If too nutrient rich:	Diversity and complexity of life-forms would be limited Diversity and complexity of life-forms would be limited
47. Seismic activity	If greater: If less:	Too many life-forms would be destroyed Nutrients on ocean floors (from river runoff) would not be recycled to the continents through tectonic uplift

from a paper "Limits for the Universe" by Hugh Ross, Ph.D., updated to "Astronomical Evidences for the God of the Bible," which is available online at http://www.reasons.org/resources/apologetics/astroevid.shtml

This page is from the doesgodexist.org Web site.

Does God Exist?

PO Box 2704

South Bend, IN 46680-2704

08/08