

blowing the universe up

The Urth list — 1 messages, 1 voices, 11 Jul 1998

<https://urth.darkrealm.vip/thread/urth/958>

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Damien Broderick — 11 Jul 1998, 12:17

"William H. Ansley" <wansley at warwick.net> meditated on final things:

< If the universe is infinite,
why isn't the night sky a blaze of light? It follows the same structure as the CP. If the universe is infinite, there are an infinite number of stars. If there are an infinite number of stars, then if any fraction of their light falls on the earth, the earth must receive an infinite amount of starlight. I am not sure what the correct refutation of this paradox is (its answer was left open when I read about it). I imagine that it has to do with the fact that the farther away a star is, the less of its light reaches the earth. An infinite series of diminishing values need not have an infinite sum. >

Olber's Paradox. Starlight falls off as the inverse square of distance; however, if the universe is homogeneous on the large scale, number of stars increases as the square of the distance, balancing this loss exactly. The whole sky should be roughly as bright as the sun.

It's not, because

the universe, infinite or otherwise, is expanding

there is an horizon where the speed of recession reaches c .

Damien Broderick