

ASTRONOMY

A little biology can explain complexities of the universe

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On clear, moonless evenings in early fall, away from city lights, the Milky Way seems to form a giant luminous arch across the sky, from northeast to southwest. At first, it might look like a long cloud stretching overhead.

But train a simple pair of binoculars on it and you'll see that the light is coming from countless numbers of faint stars.

How the Milky Way looks in the sky is one of the big clues telling us where we are in the universe. Our sun and all the stars we see at night are part of the Milky Way galaxy, a vast pancake of about a 100 billion stars.

We are immersed in that pancake, neither near the center nor the edge. On fall evenings the pancake seems to stand on edge, its center hovering over the southwest horizon, far behind the stars of the constellation Sagittarius.

Last month I wrote about an imaginary scale model of our solar system — the sun and its nine-or-so planets — that you could fit in your house.

On this scale, you'd have to make the sun the size of a small pea, and the Earth, a foot away, would be too small to see without a magnifying glass. The next closest star, Alpha Centauri, would be another pea, 50 miles away.

Imagine shrinking that 50 miles so that it could all fit in a thimble. The sun would be smaller than the tiniest thing ever made in a nanotechnology lab.

Neighboring stars would be barely half an inch apart, and the Milky Way, with a little squeezing, would just fit in Ohio Stadium.

The Andromeda Galaxy, the Milky Way's big brother and the most distant thing you can see with the unaided eye, would fill long-term parking at Port Columbus.

It would take light less than a 20th of a second to cross the Earth and a few hours to cross the solar system. It would take a few years to cross the distances between stars and a thousand centuries to cross the Milky Way.

The light we see from the Andromeda Galaxy has been traveling through intergalactic space for more than 2 million years.

The brightest stars we find in the Milky Way have identical counterparts in the Andromeda Galaxy, which look so much fainter that they must be hundreds of times farther away. It takes only careful measurements and eighthgrade math to calculate exactly how far.

Galaxies are to the universe what cells are to the human body. They're the basic units of structure.

It would be stretching that poetic analogy way too far to suggest that the universe is a living organism. But a little poetic wonder can be a good thing when you're under the stars.

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