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Solar System's Fate Predicted by Nearby White Dwarf?

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for National Geographic News
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In an example of galactic foreshadowing, scientists have gazed out at the stars and glimpsed how our solar system might look in several billion years.

An unusual ring of metal-rich gas orbiting a white dwarf—the remains of a burned-out star of modest mass—has been spied within the constellation Virgo.

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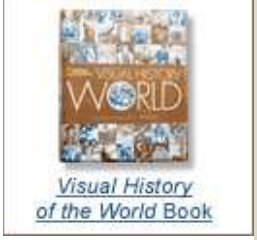

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The white dwarf, called SDSS 1228+1040, sits about 463 light-years from our solar system (explore an online star chart).

Scientists believe the solar remnant formed from a star that was about four to five times as massive as the sun.

Interactions between at least one planetlike object and an asteroid that once orbited the white dwarf at a great distance are responsible for the ring of metal-rich gas.

In a paper appearing in tomorrow's issue of the journal *Science,* astronomers describe how the process that likely formed this unusual system could provide insight into how our solar system will eventually meet its end.

White Dwarf

When small to medium-size stars burn up all their hydrogen, they expand like balloons into so-called red giants, destroying everything in their path.

These dying stars can become hundreds to thousands of times the size of our sun.

Eventually the outer layers of a red giant disperse and leave behind a dense core—a white dwarf—that usually contains roughly the same mass of our sun in a body the size of Earth.

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As it expanded, the red giant version of SDSS 1228+1040 probably destroyed everything in its orbit out to about 500 million miles (800 million kilometers), according to the scientists.

What's so unusual about SDSS 1228+1040 is the metal-rich disk of gas that orbits close to the white dwarf, roughly 500,000 miles (800,000 kilometers).

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