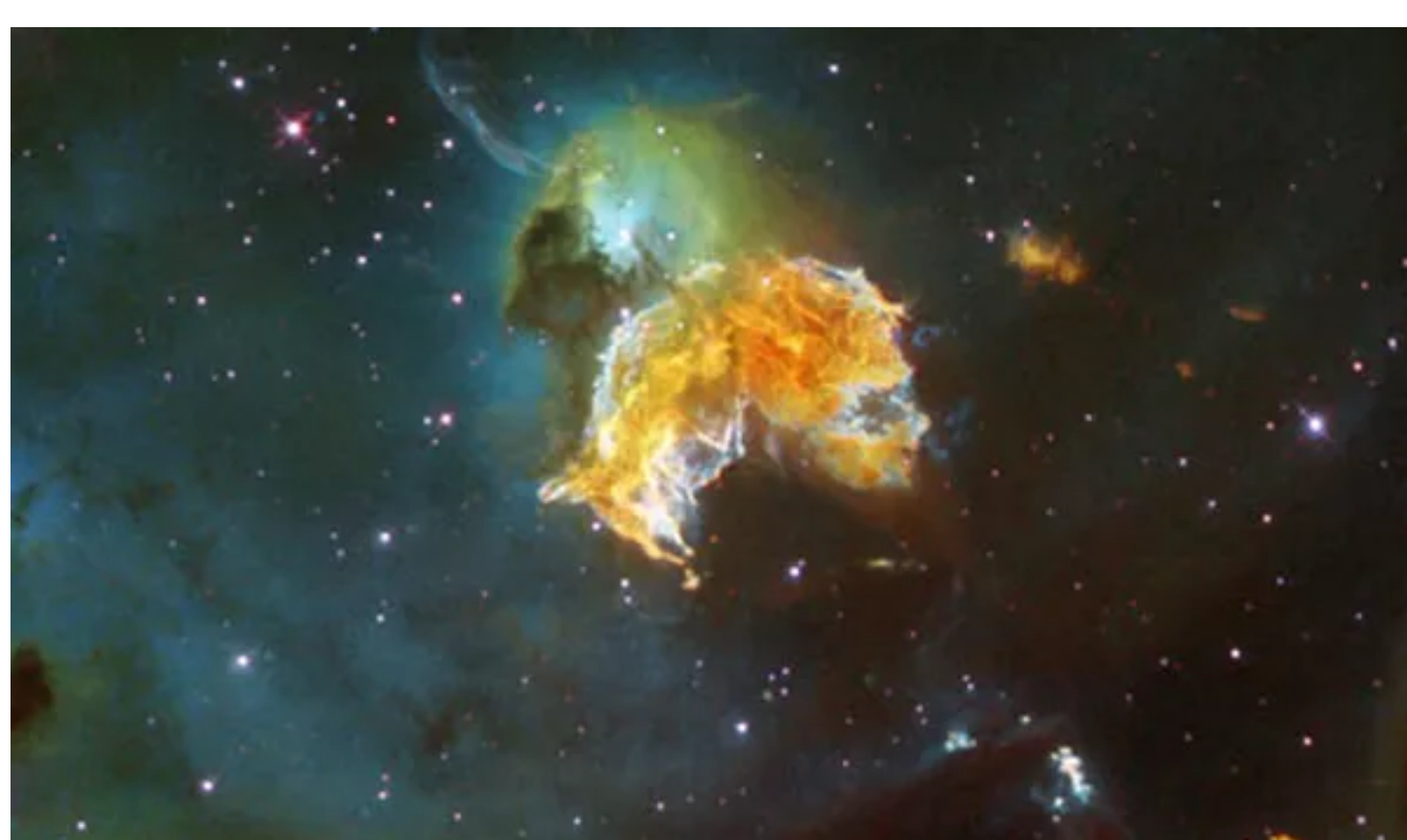


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Are We Really All Made of Stars?

News By [Remy Melina](#) ([lifes-little-mysteries](#)) published October 13, 2010



The remains of a once-explosive supernova illuminate part of a nearby galaxy in this image taken by the Hubble Space Telescope. (Image credit: NASA/ESA/HEIC/Hubble Heritage Team)

The theory that everyone and everything on Earth contains minuscule star particles dates back further than Moby's popular 2002 song "We Are All Made of Stars."

In the early 1980s, astronomer Carl Sagan hosted and narrated a 13-part television series called "Cosmos" that aired on PBS. On the show, Sagan thoroughly explained many science-related topics, including Earth's history, evolution, the origin of life and the solar system.

"We are a way for the universe to know itself. Some part of our being knows this is where we came from. We long to return. And we can, because the cosmos is also within us. We're made of star stuff," [Sagan famously stated](#) in one episode.

His statement sums up the fact that the carbon, nitrogen and oxygen atoms in our bodies, as well as atoms of all other heavy elements, were [created in previous generations of stars](#) over 4.5 billion years ago. Because humans and every other animal as well as most of the matter on Earth contain these elements, we are literally made of star stuff, said Chris Impey, professor of astronomy at the University of Arizona.

"All organic matter containing carbon was produced originally in stars," Impey told Life's Little Mysteries. "The universe was originally hydrogen and helium, the carbon was made subsequently, over billions of years."

How star stuff got to Earth

When it has exhausted its supply of hydrogen, it can die in a violent explosion, called a nova. The explosion of a massive star, called a supernova, can be billions of times [as bright as the Sun](#), according to "Supernova," (World Book, Inc., 2005). Such a stellar explosion throws a large cloud of dust and gas into space, with the amount and composition of the material expelled varying depending on the type of supernova.

A supernova reaches its peak brightness a few days after it first occurred, during which time it may outshine an entire galaxy of stars. The dead star then continues to shine intensely for several weeks before gradually fading from view, according to "Supernova."

The material from a [supernova eventually disperses](#) throughout interstellar space. The oldest stars almost exclusively consisted of hydrogen and helium, with oxygen and the rest of the heavy elements in the universe later coming from supernova explosions, according to "Cosmic Collisions: The Hubble Atlas of Merging Galaxies," (Springer, 2009).

"It's a well-tested theory," Impey said. "We know that stars make heavy elements, and late in their lives, they eject gas into the medium between stars so it can be part of subsequent stars and planets (and people)."

Cosmic connections

So, all life on Earth and [the atoms in our bodies](#) were created in the furnace of now-long-dead stars, he said.

In 2002, music artist Moby released "We Are All Made of Stars," explaining during a press interview that his lyrics were inspired by quantum physics. "On a basic quantum level, all the matter in the universe is essentially made up of stardust," he said.

More recently, Symphony of Science, an artistic project headed by John Boswell and designed to deliver scientific knowledge through musical remixes, released "We Are All Connected." The song features clip of Sagan's "We're made of star stuff" proclamation, created into a song with [software program Auto-Tune](#).

- [What's Hyperspace?](#)
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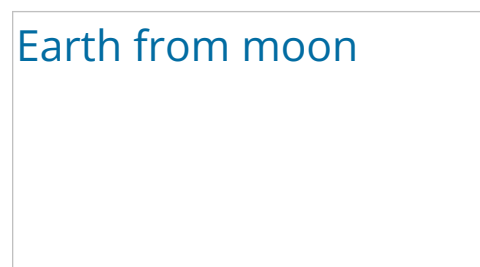
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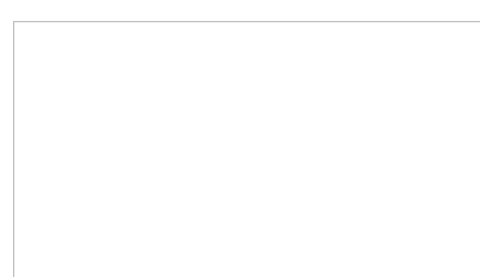
Remy Melina was a staff writer for Live Science from 2010 to 2012. She holds a bachelor's degree in Communication from Hofstra University where she graduated with honors.

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