Astronomers see our origins in 20−year−old star explosion (Forwarded)

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Nearly 20 years after its explosion in the Large Magellanic Cloud, we hear again about the supernova SN1987A. An international team of astronomers [1], led by Patrice Bouchet from Paris Observatory (GEPI) has just detected a ring of dust in the infrared with the Gemini 8m telescope in Chile. Spectra of the dust by the Spitzer satellite show that it is indeed thermal emission from silicate grains, which have condensed from the red giant stellar wind of the precursor star.

In 1987 a massive star in a neighboring galaxy exploded, an event called a supernova. It was the closest supernova to Earth since the invention of the telescope centuries ago. All the major observatories and millions of people worldwide turned to watch the death of this star.

Now, nearly 20 years after the star's death, the explosion is revealing signs of life −− in the form of dust particles that are the building blocks of rocky planets and all living creatures. And astronomers once again are captivated.

"Supernova 1987A is changing right before our eyes," said Dr. Eli Dwek, a cosmic dust expert at NASA Goddard Space Flight Center in Greenbelt, Maryland. Dwek and his colleague Dr. Patrice Bouchet of the Observatoire de Paris have been following for several years this rapidly changing supernova, named SN 1987A for the year it was discovered in the Large Magellanic Cloud, a dwarf galaxy. "What we are seeing is a milestone in the evolution of a supernova."

Using infrared telescopes, Bouchet, Dwek and their colleagues [1] detected silicate dust created by the star from before it exploded. This dust survived the explosion; was swept up and pushed out by shock waves; and is now, nearly 20 years later, finally approaching a ring of gas surrounding the embers of the dead star, making it "visible" to infrared detectors.

Dust −− chemical particles and crystals finer than beach sand −− is both a frustration and a fascination for

astronomers. Dust can obscure observations of distant stars. Yet dust is the stuff from which all solid bodies are formed. This is why dust, as bland as it sounds, is one of the most important topics in astronomy and astrobiology.

Dust is everywhere in the universe, yet astronomers know so little about its origin. Clearly dust is made in stars and hurled into space by supernovae. But the devil is in the