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1. **Scopes will help build on planet knowledge**, Townsville Eye (Australia), 1 - ed, p73,Saturday, November 7, 2009

2. **Supernova from 2002 is in an entirely new class, researchers say**, David Perlman, San Francisco Chronicle (CA), 5star ed, pA7, Friday, November 6, 2009

3. **Eyes on the skies**, Daily Telegraph (Sydney, Australia), 1 - State ed, p19, Thursday, November 5, 2009

4. **Fed: Six telescopes will help build on planet knowledge: expert**, Australian Associated Press, Wednesday, November 4, 2009

5. **IOWA STATE RESEARCHERS CONTRIBUTE TO DISCOVERY OF GAMMA RAYS FROM STARBURST GALAXY**, US Federal News, Tuesday, November 3, 2009

6. **Cosmic rays likely powered by exploding stars and stellar "winds"**, Hindustan Times, Tuesday, November 3, 2009

Record - 1

DIALOG(R)
Scopes will help build on planet knowledge
Townsville Eye (Australia), 1 - ed, p73
Saturday, November 7, 2009

TEXT:
A NEW network of six telescopes across three countries will provide greater sky coverage and shed light on how planets form

Two telescopes will be housed in Australia, two in Chile and two in Namibia through the collaboration of the Australian National University, the German-based Max Planck Institute for Astronomy and the Harvard Smithsonian Centre for Astrophysics, based in the US

The network will feature a series of identical wide-field telescopes, expanding on the Hungarian-made Automated Telescope Network, to provide near 24-hour coverage of southern hemisphere skies

The telescopes will enable researchers to monitor hundreds of thousands of moderately bright stars simultaneously and enable them to detect

'transiting planets', or planets that pass in front of their parent star, causing a momentary eclipse

"The network will provide greater sky coverage, more observing sites and continuous monitoring of the sky," said Daniel Bayliss from the Research School of Astronomy and Astrophysics at ANU.

Record - 2

DIALOG(R)
Supernova from 2002 is in an entirely new class, researchers say
David Perlman
San Francisco Chronicle (CA), 5star ed, pA7
Friday, November 6, 2009

TEXT:
A bizarre exploding star that left its embers glowing invisibly in the distant sky seemed just like one of hundreds that flash into existence all the time - until one sharp-eyed astronomer noticed its unusual spectral details.

The record examined by Dovi Poznanski, a UC Berkeley researcher, revealed that the short-lived but violent cosmic explosion in a far-off galaxy 135 million light-years away could be an entirely new class of supernovae - briefly flaring blasts that first astonished ancient Chinese astronomers with their startling brilliance in 135 A.D. and have remained an object of astronomical wonder ever since.

This unique supernova, dubbed SN2002bj, was the first one found that was apparently caused when helium gas flowed from one tiny but immensely massive white dwarf star to another dwarf star orbiting close by. The result was a true thermonuclear explosion that died away in days rather than months, the Berkeley astronomers said, and its formation differed sharply from standard supernova models.

Poznanski, a postdoctoral researcher, was reviewing supernova records six months ago when he spotted the unusual nature of SN2002bj and realized it was no run-of-the-mill cosmic blast. He and his colleagues reported the details of the blast's peculiarities in Thursday's online edition of the journal Science.

The mysterious supernova is located in the constellation Lepus the hare.

Poznanski calculated that at the explosion's most powerful moment, it must have flared 10 billion times brighter than our sun, although nowhere near as bright as normal supernovae that can blaze 10 times more powerfully than that.

The work of amateursThe story of SN2002bj's detection actually started with a competition involving two amateur astronomers: Tim Puckett of Atlanta, who operates his own automated high-tech observatory in the little Georgia town of Ellijay (population 1,119), and Jack Newton, who has a high-tech robot telescope in Portal, Ariz. (population 80).
They lead an amateur World Supernova Search Team, whose 28 members - from Canada to South Africa - use their high-powered telescopes to scan the skies every clear night. The team has discovered no fewer than 206 supernovae in the past 15 years.

Puckett and Newton discovered SN2002bj at the same time the night it flared, and immediately reported it to the International Astronomical Union's Central Bureau for Astronomical Telegrams at the Harvard Smithsonian Astrophysical Observatory in Cambridge, Mass., on April 18, 2002.

Alex Filippenko, a senior UC astronomer whose team also hunts for supernovae with a robot telescope system at Lick Observatory atop Mount Hamilton, also reported detecting the stellar explosion on the same night - but just a little later.

"It really was a dead heat," Filippenko said of the discovery. But he conceded that Puckett and Newton beat him technically" by three and a half hours because Puckett's observatory is located where the time is three hours ahead and where the sun sets much earlier.

A prediction is realizedAs to the science beyond the discovery, it turns out that a group of scientists led by Lars Bildsten, a theoretical astrophysicist at UC Santa Barbara's Kavli Institute, predicted two years ago that an unusual class of short-lived exploding stars with highly unusual properties never seen before ought to exist. If astronomers looked, Bildsten said, they would discover the stars someday.

Bildsten and his group published their prediction in the Astrophysical Journal Letters in 2007. Only six months ago, Poznanski discovered as he was gathering his data that the characteristics of SN2002bj fit Bildsten's prediction of a new supernova class precisely.

"It's long dead now," Poznanski said of the supernova. "But that's the kind of business we're in, so we'll have to look for more."

Said Puckett: "We'll keep hunting for more, too."

Record - 3

DIALOG(R)
Eyes on the skies
Daily Telegraph (Sydney, Australia), 1 - State ed, p19
Thursday, November 5, 2009

TEXT:
AUSTRALIA will be part of a new network of six telescopes across three countries that will help shed light on how planets form

Two telescopes will be housed in Australia, two in Chile and two in Namibia, through the collaboration of the Australian National University, the German-based Max Planck Institute for Astronomy and the Harvard Smithsonian Centre for Astrophysics, based in the US

The wide-field telescopes will give near 24-hour coverage of southern hemisphere skies.

Record - 4

DIALOG(R)
Fed: Six telescopes will help build on planet knowledge: expert
Australian Associated Press
Wednesday, November 4, 2009

TEXT:
A network of six new telescopes across three countries will provide greater sky coverage and shed light on how planets form.

Two telescopes will be housed in Australia .. two in Chile and two in Namibia .. through a collaboration of the Australian National University .. the German-based Max Planck Institute for Astronomy and the Harvard Smithsonian Centre for Astrophysics .. based in the US.

The network will feature a series of identical wide field telescopes to provide near 24 hour coverage of the southern hemisphere skies.

AAP RTV srj/crh

Record - 5

DIALOG(R)
IOWA STATE RESEARCHERS CONTRIBUTE TO DISCOVERY OF GAMMA RAYS FROM STARBURST GALAXY
US Federal News
Tuesday, November 3, 2009

TEXT:
AMES, Iowa, Nov. 2 -- Iowa State University issued the following news release:

Iowa State University astrophysicists contributed to the recent discovery that a galaxy quickly creating new stars is also a source of high energy gamma rays.

The discovery has just been published by the journal Nature. The study reports that researchers using the VERITAS array of four telescopes at the Fred Lawrence Whipple Observatory in Arizona have detected gamma rays of a trillion electron volts coming from the M 82 galaxy. The corresponding author of the article is Wystan Benbow of the Harvard-Smithsonian Center for Astrophysics and the Whipple Observatory.
Researchers discovered cosmic rays (mostly hydrogen nuclei) from space nearly a century ago and have developed theories about their origins in supernova remnants and star-forming galaxies, but hadn't found evidence to support those theories.

"This is a step toward solving a 100-year-old puzzle in cosmic ray physics," said Frank Krennrich, an Iowa State professor of physics and astronomy and a collaborator on the VERITAS project.

Gamma rays are high energy electromagnetic radiation. The rays discovered by the VERITAS researchers have a trillion times the energy of visible light. M 82 is a galaxy in the direction of the Ursa Major constellation that's 12 million light years from Earth. It is classified as a starburst galaxy. Such galaxies are colliding with other galaxies, causing shockwaves that compress gases and create stars at very high rates.

"What this shows is that there is a strong connection between a galaxy with high star formation, high gas density and the production of cosmic rays," Krennrich said.

But Krennrich said there's more work to be done to definitively trace gamma rays to cosmic rays in starburst galaxies.

Researchers believe more knowledge of gamma rays could help them explore distant regions of space, help them look for evidence of dark matter, determine how much electromagnetic radiation the universe has produced and answer questions about the formation of stars and galaxies.

Krennrich said one key to current gamma ray research is the VERITAS telescope system (that's the Very Energetic Radiation Imaging Telescope Array System). The $20 million instrument started operating in 2007 and is the world's most sensitive instrument for detecting gamma rays.

It's not easy to detect those rays. Even with their high energies, gamma rays can't penetrate the earth's atmosphere. When they hit the atmosphere, they create showers of electrons and positrons that create a blue light known as Cerenkov radiation. Those showers move very fast. And they're not very bright.

VERITAS looks for the rays with four reflector disks 12 meters across that look like satellite dishes. The reflectors are covered with mirrors that direct light into cameras attached to the front of each disk. Each camera is about 7 feet across and contains about 500 tube-shaped photon detectors or pixels.

All those detectors were built in a laboratory on the fourth floor of Iowa State's Zaffarano Physics Addition. The assembly took about $1 million and a lot of work by Iowa State post-doctoral researchers Martin Schroedter and Tomoyuki Nagai.

The telescope system is based on techniques Iowa State researchers Richard Lamb and David Carter-Lewis helped develop in the 1980s.

And now Krennrich says researchers are contemplating the next generation of gamma ray detection systems.

Krennrich said researchers are assembling a worldwide collaboration to plan and build a $300 million, 36-telescope array. The new instrument would be known as AGIS (the Advanced Gamma-ray Imaging System) and would be 10 times more sensitive than VERITAS.

Krennrich said Iowa State researchers are working on image-recognizing

technology for the AGIS system that would help researchers by automatically separating gamma ray events from background events.

The new instrument, Krennrich said, might finally produce the data that establishes the origins of gamma rays and cosmic rays.For more information please contact: Sarabjit Jagirdar, Email:-htsyndication@hindustantimes.com.

Record - 6

DIALOG(R)
Cosmic rays likely powered by exploding stars and stellar "winds"
Hindustan Times
Tuesday, November 3, 2009

TEXT:
Washington, November. 3 -- In a new research, astronomers have solved a 100-year old mystery of the origin of cosmic rays, by finding evidence which indicates that cosmic rays are likely powered by exploding stars and stellar "winds".

Astronomers came across the evidence using the VERITAS telescope array.

VERITAS found new evidence for cosmic rays in the "Cigar Galaxy," also known as Messier 82 (M82), which is located 12 million light-years from Earth in the direction of the constellation Ursa Major.

"This discovery has been predicted for almost 20 years, but until now no instrument was sensitive enough to see it," said Wystan Benbow, an astrophysicist at the Smithsonian Astrophysical Observatory.
Benbow coordinated this project for the Very Energetic Radiation Imaging Telescope Array System (VERITAS) collaboration.

The VERITAS observations strongly support the long-held theory that supernovae and stellar winds from massive stars are the dominant accelerators of cosmic-ray particles.

Galaxies with high levels of star formation like M82, also known as "starburst" galaxies, have large numbers of supernovae and massive stars.

If the theory holds, then starburst galaxies should contain more cosmic rays than normal galaxies.

The VERITAS discovery confirms that expectation, indicating that the

cosmic-ray density in M82 is approximately 500 times the average density in our Galaxy, the Milky Way.

"This discovery provides fundamental insight into the origin of cosmic rays," said Rene Ong, a professor of physics at the University of California, Los Angeles, and the spokesperson for the VERITAS collaboration.

VERITAS could not detect M82's cosmic rays directly because they are trapped within the Cigar Galaxy. Instead, VERITAS looked for clues to the presence of cosmic rays: gamma rays.

Gamma rays are the most energetic form of light, far more powerful than ultraviolet light or even X-rays.

When cosmic rays interact with interstellar gas and radiation within M82, they produce gamma rays, which can then escape their home galaxy and reach Earthbound detectors.

It took two years of dedicated data collection to tease out the faint signal coming from M82.

"We knew that the detection of M82 would have important scientific implications. As a result, we scheduled an exceptionally long exposure immediately after the experiment became fully operational," said Benbow.

"The data needed to be meticulously analyzed to extract the gamma-ray signal, which is over a million times smaller than the background noise. Although the signal is only a tiny fraction of the data, we made many checks for possible bias and we are confident that the signal is genuine," he added. Published by HT Syndication with permission from Asian News International. For more information on news feed please contact Sarabjit Jagirdar at htsyndication@hindustantimes.com