Team finds new evidence of moment after Big Bang

One physicist calls researchers' work 'a grand slam.'

By Malcolm Ritter

Associated Press

Researchers say they have spotted evidence that a split-second after the Big Bang, the newly formed universe ballooned out at a pace so astonishing that it left behind ripples in the fabric of the cosmos.

If confirmed, experts said, the discovery would be a major advance in the understanding of the early universe. Although many scientists already believed that an initial, extremely rapid growth spurt happened, they have long sought the type of evidence cited in the new study.

The results reported Monday emerged after researchers peered into the faint light that remains from the Big Bang of nearly 14 billion years ago.

The discovery "gives us a window on the universe at the very beginning," when it was far less than one-trillionth of a second old, said theoretical physicist Lawrence Krauss of Arizona State University, who was not involved in the work.

"It's just amazing," Krauss said. "You can see back to the beginning of time."

Marc Kamionkowski, a theoretical physicist at Johns Hopkins University who did not participate in the research, said the finding is "not just a home run. It's a grand slam."

He and other experts said the results must be confirmed by other observations, a standard caveat in science.

Right after the Big Bang, the universe was a hot soup of particles. It took about 380,000 years to cool enough that the particles could form atoms, then stars and galaxies. Billions of years later, planets formed from gas and dust that were orbiting stars. The universe has continued to spread out.

Krauss said he thinks the new results could rank among the greatest breakthroughs in astrophysics over the last 25 years, such as the Nobel prize-winning discovery that the universe's expansion is accelerating.

Monday's findings were announced by a collaboration that included researchers from the Harvard-Smithsonian Center for Astrophysics, the University of Minnesota, Stanford University, the California Institute of Technology and NASA's Jet Propulsion Laboratory.

The team plans to submit its conclusions to a scientific journal this week, said its leader, John Kovac of Harvard.

Scientists Clem Pryke (from left), Jamie Bock, Chao-Lin Kuo and John Kovac smile during a news conference at the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., on Monday regarding their new findings on the early expansion of the universe. Experts called the discovery a major advance if confirmed. ***ELISE AMENDOLA / ASSOCIATED PRESS***