



A visual of gravitational waves from two converging black holes is depicted on a monitor behind Laser Interferometer Gravitational-Wave Observatory (LIGO) Co-Founder Kip Thorne as he speaks to members of the media following a news conference at the National Press Club in Washington, Thursday.

GRAVITY: ‘Comparable only to Galileo taking up the telescope and looking at the planets’

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ferometer Gravitational-wave Observatory, or LIGO, to detect a gravitational wave generated by the collision of two black holes 1.3 billion light-years from Earth. “Einstein would be beaming,” said National Science Foundation director France Cordova. The proof consisted of what scientists called a single chirp — in truth, it sounded more like a thud — that was picked up on Sept. 14. Astronomers played the recording at an overflowing news conference Thursday. “That’s the chirp we’ve been looking for,” said Louisiana State University physicist Gabriela Gonzalez, scientific spokeswoman for the LIGO team. Scientists said they hope to have a greatest hits compilation of the universe in a decade or so. Some physicists said the finding is as big a deal as the 2012 discovery of the subatomic Higgs boson, known as the “God particle.” Some said this is bigger. “It’s really comparable only to Galileo taking up the telescope and looking at the planets,” said Penn State physics theorist Abhay Ashtekar, who wasn’t part of the discovery team.

Physicist Stephen Hawking congratulated the LIGO team, telling the BBC: “Gravitational waves provide a completely new way of looking at the universe. The ability to detect them has the potential to revolutionize astronomy.” Gravitational waves, postulated by Albert Einstein in 1916 as part of his theory of general relativity, are extraordinarily faint ripples in space-time, the continuum that combines both time and three-dimensional space. When massive objects like black holes or neutron stars collide, they generate gravitational waves that stretch space-time or cause it to bunch up like a fishing net. Scientists found indirect proof of gravitational waves in the 1970s by studying the motion of two colliding stars, and the work was honored as part of the 1993 Nobel Prize in physics. But now scientists can say they have direct proof. “It’s one thing to know sound waves exist, but it’s another to actually hear Beethoven’s Fifth Symphony,” said Marc Kamionkowski, a physicist at Johns Hopkins University who wasn’t part of the discovery team. “In this case, we’re actually getting to hear black holes merging.”

Last hours of standoff play out online

By MARTHA BELLISLE
Associated Press

The end of a nearly six-week-long standoff at an Oregon wildlife refuge played out live on the Internet, with tens of thousands of people listening as supporters encouraged the last armed occupiers to surrender. An open phone line broadcast on YouTube gave a glimpse into the final hours of the standoff, with the four remaining occupiers shouting, laughing and praying. The holdouts surrendered Thursday, having refused to leave Malheur National Wildlife Refuge after the group’s leaders were arrested last month. The call was streamed live by an acquaintance of David Fry, who yelled rambling tirades and threats against the government on a cellphone from a cot inside a tent. Fry’s friend, a Nevada lawmaker, a Christian lawyer and a reverend tried to calm him and the others between Wednesday night and Thursday. Fry held off his surrender for a couple of hours after the other three walked out, saying his grievances still had not been met. “I’m actually pointing a gun at my head,” the 27-year-old said. “It’s better to die with honor than be forced to live dishonorably.” Those on the line begged him not to kill himself. The livestream showed what was happening on the ground in real time, with reporters kept away from the refuge by the FBI. The group, also made up of Jeff Banta of Nevada and Idaho married couple Sean and Sandy Anderson, had previously been posting updates to a YouTube channel called Defend Your Base.



Authorities lead a caravan of the final four occupiers of the Malheur National Wildlife Refuge through the Narrows roadblock on Thursday near Burns.

Federal authorities moved in Wednesday night, surrounding the holdouts with armored vehicles, saying it “became necessary to take action” to ensure the safety of all involved. The occupiers’ panic and their negotiations with FBI agents could be heard live on the Internet. “They’re threatening us,” Sandy Anderson said after the group was surrounded. “They’re getting closer. I pray that there’s a revolution if we die here tonight.” The next day, her husband sounded nervous as preparations got underway to surrender. Sean Anderson said that if the FBI double-crosses them, “all deals are off.” “We want to be honorary Marines, because I think we stood on the battlefield and fought for our country,” he said. After the Andersons and Banta walked out of the refuge, Fry stayed

behind, remaining defiant. “I’m actually feeling suicidal right now,” he said. “I will not go another day a slave to the system. I’m a free man. I will die a free man.” Christian lawyer KrisAnn Hall and activist Gavin Seim, who streamed the call, told Fry that he was an important voice for their cause and they would protect and support him even in custody. Fry rambled that he didn’t want to pay his taxes, felt like killing himself and wanted a pizza. His supporters urged him to give up. “All I needed was marijuana,” Fry said at one point. He finally said he would leave if everyone would say, “Hallelujah.” As he walked out, officials standing nearby called out the word. An officer told him to put his hands behind his back and then the line went dead.

Diplomats aim for temporary Syria truce in a week

MUNICH (AP) — Diplomats trying to secure a ceasefire for the civil war in Syria fell short in organizing an immediate truce but agreed to try to work out details and implement a temporary “cessation of hostilities” in the coming week. Foreign ministers from the International Syria Support Group also sealed an agreement early Friday to “accelerate and expand” deliveries of humanitarian

assistance to seven besieged Syrian communities. Those deliveries are to begin immediately after a working group meets on the matter Friday in Geneva. Speaking for the group, U.S. Secretary of State John Kerry hailed the results but noted they were “commitments on paper.” “The real test is whether or not all the parties honor those commitments and implement them,” he said. Kerry and Russian

Foreign Minister Sergey Lavrov, who had been pressing for a ceasefire to begin March 1, said the U.S. and Russia would co-chair both the working group on humanitarian aid as well as the group that will try to deal with the “modalities” of the temporary truce. However, it was not clear if deep differences between the U.S. and Russia on these issues could be overcome. While humanitarian access is critical to relieving

the suffering of millions of Syrians in the short term, a lasting ceasefire will be required if stalled negotiations between Syrian President Bashar Assad’s government and the opposition are to resume on or before the U.N.-set target date of Feb. 25. The talks broke down last month before they really started, due largely to gains by Assad’s military with the heavy backing of Russian airstrikes.

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