Space & Astronomy:

India's LIGO Project on Track IN

Work is underway on the **Laser Interferometer Gravitational-Wave Observatory (LIGO)** in the Hingoli district of Maharashtra, India. The facility, which is the third of its kind globally, is expected to be unveiled by 2030. The observatory is designed to detect gravitational waves, the ripples in space-time that were predicted by Albert Einstein and first confirmed ten years ago in 2015.

The Indian facility is crucial for a new field of research called "multi-messenger astronomy," which combines gravitational wave data with observations from traditional telescopes. A third detector on the other side of the planet from the two US-based observatories will significantly improve scientists' ability to pinpoint the source of gravitational waves, allowing for faster follow-up observations with telescopes. This will help scientists better understand cataclysmic cosmic events like black hole mergers and neutron star collisions.

China's Asteroid Deflection Mission CN

China has launched a pioneering mission with twin spacecraft to a near-Earth asteroid. The mission's goal is to attempt to slightly alter the asteroid's trajectory. This is the first time humanity has intentionally tried to modify the path of a celestial body. While the mission's goal is to nudge the asteroid by just one inch, its success would be a significant step in developing planetary defense strategies against potential future asteroid threats. The mission also opens the door for new international discussions on space governance and the ethical implications of manipulating celestial bodies.

SpaceX & Northrop Grumman Launch

A SpaceX Falcon 9 rocket successfully launched on September 14, 2025, from Cape Canaveral, carrying Northrop Grumman's new and improved Cygnus XL cargo spacecraft to the International Space Station (ISS). This was the first flight of the larger Cygnus XL, which is capable of carrying 33% more cargo than its predecessor. The mission, designated NG-23, is part of a commercial resupply contract with NASA and is carrying over 11,000 pounds of supplies and scientific experiments to the ISS.

New Findings on Solar Flares

A new study has revealed that ions within solar flares can reach temperatures of over 108 million°F (60 million°C), which is six times hotter than previously thought. This discovery challenges long-standing assumptions about solar activity and has significant implications for space weather forecasting. Understanding these extreme temperatures is critical for protecting satellites, communication systems, and astronauts from the dangerous radiation bursts associated with solar storms

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MCQS

1: What is the main purpose of the LIGO project being built in India?
a) To study planetary orbits
b) To search for extraterrestrial life
c) To detect gravitational waves
d) To launch cargo to the ISS

Answer: c) To detect gravitational waves
The report states that the LIGO facility "is designed to detect gravitational waves, the ripples in space-time that were predicted by Albert Einstein."

2: China's pioneering mission with twin spacecraft has what primary goal?
a) To mine for rare earth metals on an asteroid
b) To test a planetary defense strategy by altering an asteroid's trajectory
c) To collect a sample from the surface of an asteroid
d) To explore the composition of a near-Earth asteroid

Answer: b) To test a planetary defense strategy by altering an asteroid's trajectory
The news highlights that the mission's goal is to "attempt to slightly alter the asteroid's trajectory," which would be a significant step in developing "planetary defense strategies against potential future asteroid threats."

3: How much more cargo can the new Northrop Grumman Cygnus XL spacecraft carry compared to its predecessor?
a) 10% more
b) 25% more
c) 33% more
d) 50% more

Answer: c) 33% more
The report specifies that the new Cygnus XL is "capable of carrying 33% more cargo than its predecessor."

4: What new finding has been revealed about the temperature of ions within solar flares?
a) They are six times hotter than previously thought.
b) They are ten times cooler than previously thought.
c) They reach a maximum temperature of 1 million°F.
d) They have no impact on space weather.

Answer: a) They are six times hotter than previously thought.

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Vedic Mathematics

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