

Experimental Superconducting (EAST)

Advanced Tokamak

June 4, 2021

In news- China's Experimental Advanced Superconducting Tokamak (EAST), an advanced nuclear fusion experimental research device, set a new record after it ran at **216 million degrees Fahrenheit (120 million degrees Celsius) for 101 seconds.**

About China's 'artificial sun' EAST-

- For another 20 seconds, the "artificial sun" also achieved a peak temperature of **288 million degrees Fahrenheit (160 million degrees Celsius) for another 20 seconds.**
- The sun's core only reaches about 15 million degrees Celsius, which means the **reactor was able to touch temperatures that are 10 times hotter than that.**
- The reactor is located at the **Institute of Plasma Physics of the Chinese Academy of Sciences (ASIPP) in Hefei, China.**
- Its **purpose** is to replicate the process of nuclear fusion, which is the same reaction that powers the sun.
- It is **one of three major domestic tokamaks** that are presently being operated across the country, the other two China is currently operating are the **HL-2A reactor as well as J-TEXT.**
- EAST first **became operational in 2006.**
- It is **part of the International Thermonuclear Experimental Reactor (ITER) facility**, which will become the world's largest nuclear fusion reactor when it becomes operational in 2035.
- The project **includes the contributions of several countries, including India, South Korea, Japan, Russia**

and the United States.

- The next goal for the scientists behind the experimental reactor is to maintain the high temperature for a long period of time.

China is not the only country that has achieved high plasma temperatures as, in 2020, **South Korea's KSTAR reactor** set a new record by maintaining a plasma temperature of over 100 million degrees Celsius for 20 seconds.

About KSTAR-

- The KSTAR (or **Korea Superconducting Tokamak Advanced Research**) is a magnetic fusion device at the Korea Institute of Fusion Energy in **Daejeon, South Korea**.
- It is intended to study aspects of magnetic fusion energy which will be pertinent to the ITER fusion project.
- The project was approved in 1995 but construction was delayed by the East Asian financial crisis.
- The **construction phase** of the project was **completed on September 14, 2007**.

The **first plasma was achieved in June 2008**.