

## HOT STUFF

Relevant for: International Relations | Topic: Effect of policies and politics of developed & developing countries on India's interests

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China is invested deeply in artificiality. It is the global leader in artificial intelligence. It is building artificial islands in the South China Sea, and has kicked up a geopolitical storm by laying a military airstrip on one. Next year, it proposes to illuminate Chengdu with an artificial moon, eight times brighter than the real thing. It will be a satellite bouncing sunlight back to earth at night, to eliminate the need for streetlights and save a packet in power costs. But paradoxically, this very year, China proposes to light up an artificial sun, which would eventually make fusion energy that's cheaper than dirt. It will work like the real sun, but run six times hotter.

Last November, the Hefei Institutes of Physical Science announced that its Experimental Advanced Superconducting Tokamak (EAST) reactor had hit a milestone, with an ion temperature of 100 million degrees Celsius. Simply put, it applied magnetic fields to a plasma — gas ions and a cloud of electrons stripped off them — to replicate the processes at the heart of the sun. If the reaction can be controlled and calibrated, it would deliver the Holy Grail of the energy industry — limitless, cheap fusion power which is completely non-polluting.

For a world that is increasingly energy-hungry and on the brink of an anthropogenic climate crisis, fusion power would be a safety line. It would reverse the trend seen in recent years, with numerous countries withdrawing their commitment to nuclear power. And the technology could eventually give China an edge in the space race. Apart from ion drives, fusion engines offer the best odds for missions into deep space that last for years or decades. Long-haul spacecraft have been the stuff of science fiction for decades but with the Tokamak reactor, the Chinese may have taken a baby step towards building one.

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