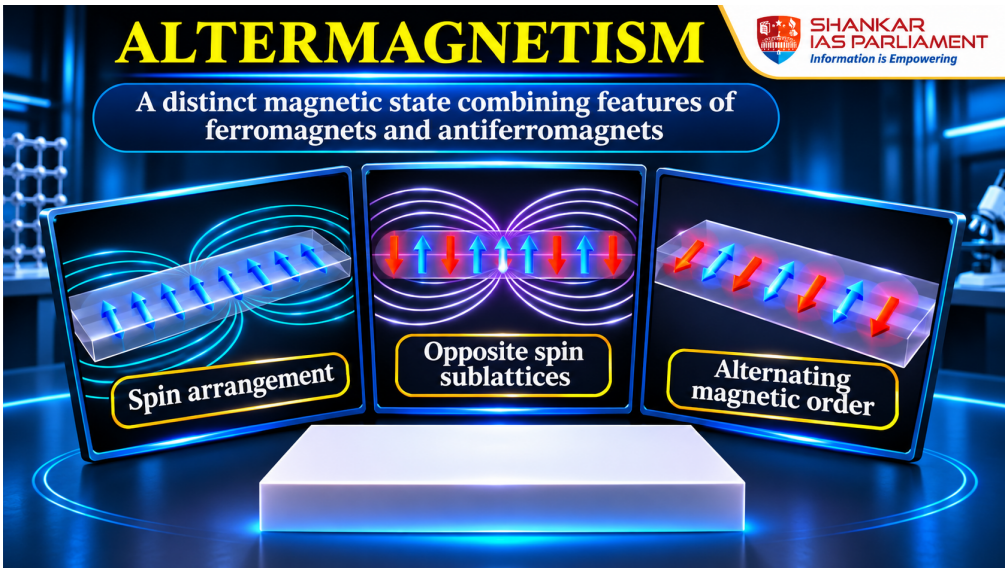
# Altermagnetism

**Prelims-** *Current events of National and International Importance| Science & Technology*

## Why in News?

*Scientists at SLAC National Accelerator Laboratory have confirmed the existence of a third fundamental class of magnetism called altermagnetism.*

- **The Material –** The team, led by researcher Daniel Jost alongside colleagues from Stanford, studied **manganese telluride (MnTe)**, a material previously categorized as a standard antiferromagnet.
- **The Proof (Chirality)-** Using polarized X-rays at the European Synchrotron Radiation Facility in France, the researchers detected an intrinsic chiral "handedness" in the material's magnetic structure—resembling a spiral staircase—which is physically impossible in a conventional antiferromagnet.
- **Best of Both Worlds-** Altermagnets cancel out overall magnetic moments (meaning zero net magnetization, like antiferromagnets) while simultaneously featuring strongly polarized electron spins and rapid dynamics (like ferromagnets).
- **Potential Applications-** The discovery could fast-track next-generation **spintronics**, energy-efficient data centers, quantum devices, and advanced memory systems.




## Reference

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