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समाचार पत्रों से चयनित अंश
Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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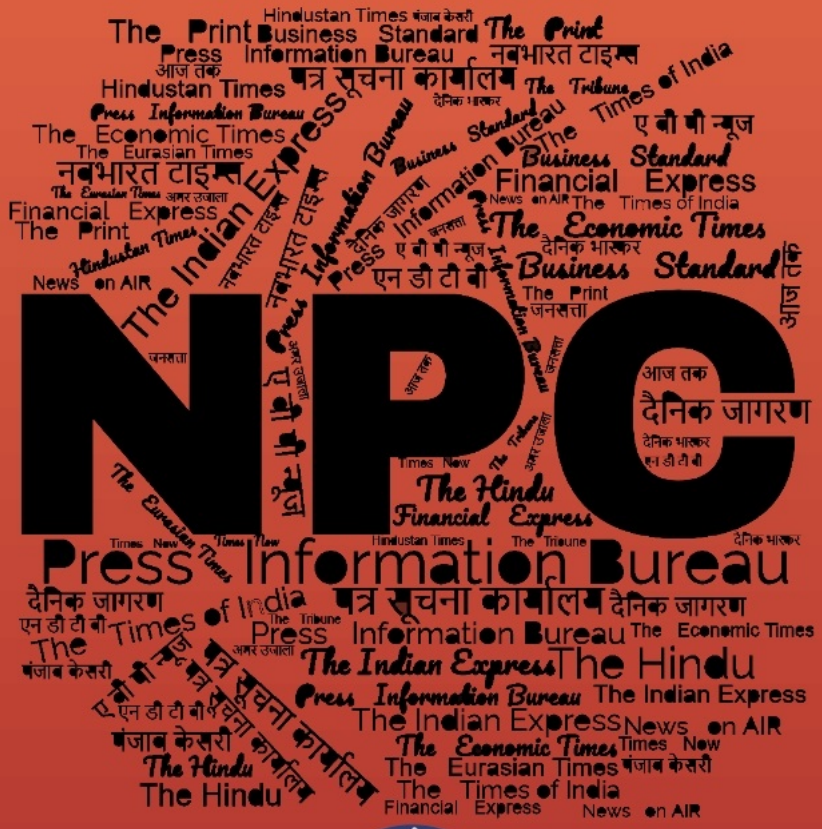

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DRDO News

लाइट टैंक जोरावर की भारतीय सेना मे एंट्री फिर टली, ट्रायल अब गर्मियों में

Source: NavBharat Times, Dt. 07 Jan 2026

Poonam.Pandey@timesofindia.com

■ नई दिल्ली: इंडियन आर्मी को लाइट टैंक जोरावर मिलने की तारीख और आगे खिसक गई है। पहले 2025 की शुरुआत में सेना को यूजर ट्रायल के लिए ये स्वदेशी लाइट टैंक मिलना था लेकिन ट्रायल के दौरान इसमें कुछ बदलाव की जरूरत बताई गई और फिर 2025 की सर्दियों तक जोरावर देने की बात कही गई। लेकिन अब यह तारीख और आगे खिसक गई है। अब गर्मियों तक आर्मी को यूजर ट्रायल के लिए जोरावर मिल पाएगा। इसे डीआरडीओ ने बनाया है।

सूत्रों के मुताबिक एक जोरावर तैयार है और दूसरा बन रहा है। अब गर्मियों में सेना को ये दो लाइट टैंक सौंपे जा सकते हैं। सेना लद्दाख में इनका यूजर ट्रायल करेगी। हाल ही में डीआरडीओ चीफ ने कहा था कि अगले 2-3 साल में जोरावर सेना में शामिल होना शुरू हो जाएंगे।

सर्दियों में यूजर ट्रायल के लिए मिलना था जोरावर

अगले 2-3 साल में सेना में शामिल हो जाएगा जोरावर

इन लाइट टैंक में नाग-मार्क2 मिसाइल भी लगेंगी। इसे भी डीआरडीओ ने डिवेलप किया है। इस स्वदेशी मिसाइल के ट्रायल 2024 में ही पूरे हो गए थे। जनवरी 2024 में डीआरडीओ ने घोषणा की थी कि 'नाग Mk 2' और इसका पूरा सिस्टम सफल फील्ड ट्रायल्स के बाद अब सेना में शामिल किए जाने के लिए तैयार है। ये स्वदेशी रूप से विकसित तीसरी पीढ़ी की फायर एंड फॉरगेट एंटी टैंक गाइडेड मिसाइल (ATGM) है। जोरावर का वजन 25 टन है। भारतीय सेना तकरीबन 350 लाइट टैंक को लेने की तैयारी में है।

लाइट टैंक की आखिर क्यों है जरूरत?

ईस्टर्न लद्दाख में एलएसी पर चीन के साथ हुए तनाव से यह सबक मिला कि सेना को लाइट टैंक की कितनी जरूरत है। जब चीन पैंगोग के उत्तरी किनारे में बहुत आगे तक बढ़ गया था तब भारतीय सेना ने चीन को चौंकाते हुए पैंगोग के दक्षिण किनारे की अहम चोटियों पर कब्जा कर लिया। यहां भारतीय सेना ने अपने T-72 और T-90 टैंक भी पहुंचा दिए। जिससे चीन बैकफुट पर आया और फिर बातचीत की टेबल पर पैंगोग इलाके में पीछे हटने पर सहमति बनी। हालांकि भारतीय सेना ने यहां जो टैंक पहुंचाए वे मुख्य तौर पर मैदानी और रेगिस्तान इलाके में ऑपरेशनल जरूरतों के लिए हैं।

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IAF to acquire 6 Airborne Early Warning and Control aircraft

Source: The Tribune, Dt. 07 Jan 2026

Moving ahead with the process of enhancing aerial surveillance and airspace management capabilities, the Indian Air Force has issued a request for information (RFI) to the industry for the procurement of six Airborne Early Warning and Control (AEW&C) aircraft along with associated ground segment equipment and facilities.

"The main purpose of the AEW&C is to provide long-range radar detection. It is a system of systems consisting of radar, identification of friend and foe (IFF) system, electronic surveillance measures (ESM), communication support measure (CSM), command and control (C2), battle management system and networking through data links," stated the RFI issued on January 5.

Though the RFI does not identify the platform to be used for the project, laid down specifications require the aircraft to have a minimum endurance of 10 hours or the capability for mid-air refueling, a service ceiling of 45,000 feet above sea level and ability to operate from airfields located at altitudes of around 10,000 feet.

Other requirements include an advanced mission suite capable of a full 360-degree scan to detect small and slow-moving targets to hypersonic vehicles, satellite-based navigational and communication aids and protection measures.

Therefore, the Airbus A-320 passenger liners, which were procured from Air India with the intent of modifying them for military use and the Embraer Legacy executive jets, three of which have been retrofitted as **AEW&C** indigenously by the **Defence Research and Development Organisation (DRDO)** and christened as **Netra**, can be the possible aircraft.

The DRDO is also working on advanced versions of the Netra systems to further boost surveillance capabilities. The new mission suite will consist of about 15 aerial sub-systems and components in addition to several ground-based elements.

Last month, the DRDO selected the Canadian Bombardier Global 6500 twin-engine business jets as the platform for its ongoing ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) programme.

At present, the IAF has five operational AEW&Cs, which include three Beriev A-50s, which are Russian IL-76 airframes equipped with Israeli sensors that were inducted about two decades ago, and two Netra aircraft. The third Netra is with the DRDO's Centre for Airborne Systems.

Given its commitments along the northern and western frontiers, the IAF has projected a requirement for 12 AEW&Cs. "The IAF has already initiated two programmes of six AEW aircraft each and one for a special role aircraft," a report tabled last year by Parliament's Standing Committee on Defence stated.

The IAF's present fleet of five AWACS is relatively small as compared to its two hostile neighbours. China has a fleet of 20 Shaanxi KJ-500 20, four Shaanxi KJ-200 and four KJ-2000, while Pakistan has four Chinese ZDK-03 Karakoram Eagle and eight Swedish Saab 2000 Erieye platforms, one of which was possibly knocked down by the IAF during Operation Sindoor.

https://www.tribuneindia.com/news/india/iaf-to-acquire-6-early-warning-aircraft/

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Defence News

General Upendra Dwivedi highlights modern warfare, defence ties during UAE visit

Source: The Hindu, Dt. 07 Jan 2026

Chief of the Army Staff, General Upendra Dwivedi, on Tuesday (January 6, 2026) addressed officers of the UAE National Defence College (NDC) during his ongoing official visit to the United Arab Emirates.

In his address, General Dwivedi highlighted the evolving global security landscape and the changing character of modern conflicts, underscoring the growing importance of technology in contemporary warfare.

He emphasised the critical leadership role of senior military officers and stressed the need for collaborative engagements, including strong bilateral and multilateral defence cooperation between India, the UAE and other regional partners, to achieve symbiotic outcomes and advance regional and global peace and security.

Chief of Army Staff General Upendra Dwivedi meets Commander, United Arab Emirates Land Forces, Maj Gen Yousef Maayouf Saeed Al Hallami, in Abu Dhabi on January 5, 2026.

Training convergence

As part of the visit, General Dwivedi also interacted with Major General Staff Yousef Maayouf Saeed Al Hallami, Commander, UAE Land Forces. The discussions focused on enhancing positive military engagement, training convergence, and advancing bilateral defence cooperation between India and the UAE.

In another key engagement, General Dwivedi met the Ambassador of India to the UAE, Deepak Mittal. The discussions centred on further strengthening India–UAE bilateral cooperation, with emphasis on military diplomacy, defence engagement, and deepening strategic ties between the two nations.

Following the visit to the UAE, Gen. Dwivedi will visit Sri Lanka from January 7-8. On arrival, the COAS will be accorded a Guard of Honour by the Sri Lanka Army. He will engage with senior military and civil leadership, including the Commander of the Sri Lanka Army, Deputy Minister of Defence and the Defence Secretary; and hold detailed discussions on matters of mutual interest, including training cooperation, capacity building and regional security.

General Dwivedi will also pay homage at the Indian Peace Keeping Force (IPKF) War Memorial, honouring the supreme sacrifice of Indian soldiers.

https://www.thehindu.com/news/national/general-upendra-dwivedi-highlights-modern-warfare-defence-ties-during-uae-visit/article70479014.ece#google_vignette

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आबादी वाले इलाकों में तैनात होंगी एयर डिफेंस गन

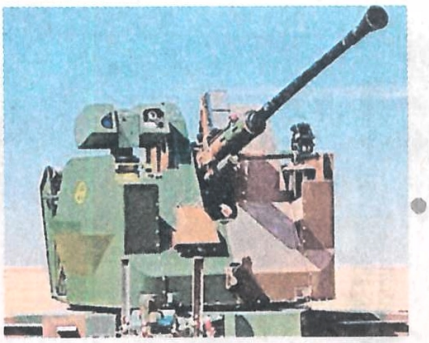
Source: Dainik Jagran, Dt. 07 Jan 2026

एएनआई, नई दिल्ली: आपरेशन सिंदूर के दौरान मिले अनुभवों से सबक लेते हुए भारतीय रक्षा बल हवाई खतरों, विशेषकर दुश्मन ड्रोन हमलों, से निपटने के लिए अपनी सुरक्षा व्यवस्था को नए सिरे से मजबूत कर रहे हैं। एक ओर सेना आबादी वाले क्षेत्रों में हवाई रक्षा तोपों की तैनाती पर काम कर रही है, वहीं दूसरी ओर केंद्र सरकार 'मिशन सुदर्शन चक्र' के तहत देशभर में एक व्यापक हवाई सुरक्षा कवच विकसित करने की दिशा में आगे बढ़ रही है। इसी क्रम में तीनों सेनाएं मिलकर एक संयुक्त काउंटर अनमैन्ड एरियल सिस्टम (सीयूएएस) ग्रिड तैयार कर रही हैं, जिससे दुश्मन या संदिग्ध ड्रोन गतिविधियों पर प्रभावी निगरानी और त्वरित कार्रवाई संभव हो सकेगी।

सूत्रों के अनुसार, यह संयुक्त सीयूएएस ग्रिड तीनों सेनाओं- थल सेना, नौसेना और वायुसेना- द्वारा पिछले पांच से 10 वर्षों में हासिल किए गए विभिन्न काउंटर-ड्रोन सिस्टम को नेटवर्क के जरिए जोड़ेगी। यह ग्रिड भारतीय वायुसेना की इंटीग्रेटेड एयर कमांड एंड कंट्रोल सिस्टम (आइएसीसीएस) जैसी मौजूदा हवाई रक्षा प्रणालियों से अलग और स्वतंत्र होगी। इस ग्रिड को ज्वाइंट एयर डिफेंस सेंटर्स (जेएडीसी) के माध्यम से संचालित किया जाएगा, जिसमें तीनों सेवाओं की भागीदारी होगी। इसका उद्देश्य छोटे ड्रोन और मानवरहित हवाई प्रणालियों की निगरानी करना और दुश्मन या आतंकी संगठनों द्वारा किए जा रहे ड्रोन हमलों को समय रहते निष्क्रिय करना है। रक्षा सूत्रों का कहना है कि यदि छोटे ड्रोन की निगरानी का जिम्मा मौजूदा हवाई रक्षा नेटवर्क पर डाला जाता, तो वे अत्यधिक दबाव में आ जाते। इसी कारण सीयूएएस के लिए अलग समर्पित ग्रिड विकसित की जा रही है। आपरेशन सिंदूर के दौरान पाकिस्तान सेना ने तुर्की और चीन में बने ड्रोन के जरिए भारतीय नागरिक और सैन्य ठिकानों को निशाना बनाने की कोशिश की थी, लेकिन सेना की एयर डिफेंस इकाइयों ने इसे विफल कर दिया। इस दौरान भारतीय सेना की एल-70 और जेडयू-23 हवाई रक्षा तोपों ने छोटे ड्रोन को भारी नुकसान पहुंचाया।

सीयूएएस ग्रिड की मुख्य बातें

- तीनों सेनाओं के लिए अलग संयुक्त सीयूएएस ग्रिड तैयार किया जाएगा
- तीनों सेनाओं के काउंटर-ड्रोन सिस्टम को नेटवर्क से जोड़ेगा ये ग्रिड
- सीयूएएस ग्रिड को ज्वाइंट एयर डिफेंस सेंटर्स के जरिये संचालित किया जाएगा
- यह करेगा दुश्मन ड्रोन गतिविधियों पर प्रभावी निगरानी और त्वरित कार्रवाई
- ये ग्रिड एयर फोर्स के इंटीग्रेटेड एयर कमांड एंड कंट्रोल सिस्टम से अलग होगा



मेरठ आर्मी बेस वर्कशाप में विकसित होगा स्वदेशी पिनाक राकेट लांचर

जासं, मेरठ : थलसेना को सशक्त करने की दिशा में इंडियन आर्मी की इलेक्ट्रानिक्स एवं मैकेनिकल इंजीनियर्स (ईएमई) शाखा, लार्सन एंड टूब्रो (एल एंड टी) और टाटा एडवांस्ड सिस्टम्स लिमिटेड (टीएएसएल) ने महत्वपूर्ण समझौता ज्ञापन पर हस्ताक्षर किया है। इसके तहत मेरठ छावनी स्थित 510 आर्मी बेस वर्कशाप में पिनाक वेपन सिस्टम के ओवरहाल एवं अपग्रेडेशन का कार्य किया जाएगा। यह साझेदारी रक्षा क्षेत्र में 'मेक इन इंडिया' और 'आत्मनिर्भर भारत' के लक्ष्यों को मजबूती प्रदान करेगी। सेना के मध्य कमान की ओर से मंगलवार को यह जानकारी इंटरनेट मीडिया पर साझा की गई।

एमओयू के तहत पिनाक मल्टी बैरल राकेट लांचर सिस्टम का उन्नयन, रखरखाव व तकनीकी सुधार भारतीय संसाधनों और विशेषज्ञता से किया जाएगा।

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Navy to commission 19 warships this year

Last year, the Navy had commissioned 14 vessels

Source: The Tribune, Dt. 07 Jan 2026

The Navy is on a course to commission 19 warships in 2026, making it the biggest force accretion in a year. Last year, the Navy had commissioned 14 vessels, including a submarine. Sources said the production tempo was unprecedented in history and demonstrated the maturity of the domestic shipbuilding ecosystem. 2026 would be the peak of expansion for the Navy. This would include the addition of more Nilgiri class multi-role stealth frigates. The lead ship was commissioned in January 2025, followed by two more — INS Himgiri and INS Udaygiri — in August 2025. At least two more are expected to be commissioned this year.

Also on the list are the survey vessel of the Ikshak class and the diving support vessel of the Nistar class. The sheer number of commissioning of new ships is aided by a new "integrated construction", which entails making various parts of a ship, particularly its hull, superstructure and

internal systems in blocks of 250 tonnes each. These blocks are built with precision to allow cables and pipes to pass through when two sets of blocks are welded together. Artificial intelligence provides a "sequences" of putting together a warship, including sourcing of material and production timelines.

Indian shipyards now produce a ship in six years, down from the earlier period of eight to nine years. This is helped by new design software, the use of artificial intelligence and modern construction techniques. The equipment, layout of machinery and fluid dynamics are predicted by software. The Ministry of Defence had opted for the "integrated construction" of warships 10 to 12 years ago. India's strategic objectives include countering Chinese naval expansion, maintaining freedom of navigation across critical sea lanes, supporting regional partners in the Quad and ASEAN and projecting power across the Indo-Pacific.

The fleet expansion of the Navy, however, does not match up to China. Beijing does not publicly release numbers of new ships, but earlier the US had estimated that Beijing would have 395 ships and submarines by 2025-end. This is an increase of almost 25 platforms since the last annual estimate of 370. A report, “China naval modernisation: Implications for US navy capabilities — Background and issues for US Congress”, in May 2025 said, “The overall battle force of China’s navy is expected to grow to 395 ships by 2025 and to 435 ships by 2030.”

https://www.tribuneindia.com/news/india/navy-to-commission-19-warships-this-year/

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India, Germany set to cement pact for six submarines

Source: The Tribune, Dt. 07 Jan 2026

Next week, India and Germany could cement their biggest military contract to jointly produce submarines for the Indian Navy as German Chancellor Friedrich Merz is scheduled to visit India on January 12 and 13.

His visit could see forward movement on India’s plans to buy and build the German Type 214 conventional submarine with air-independent propulsion. The plans involve Germany company ThyssenKrupp Marine Systems partnering with Mazgaon Dock Shipbuilders Limited (MDL) to build six vessels at a cost of around $8 billion. — TNS

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Science & Technology News

ISRO invites proposals from Indian scientists to analyse data from Aditya-L1 mission

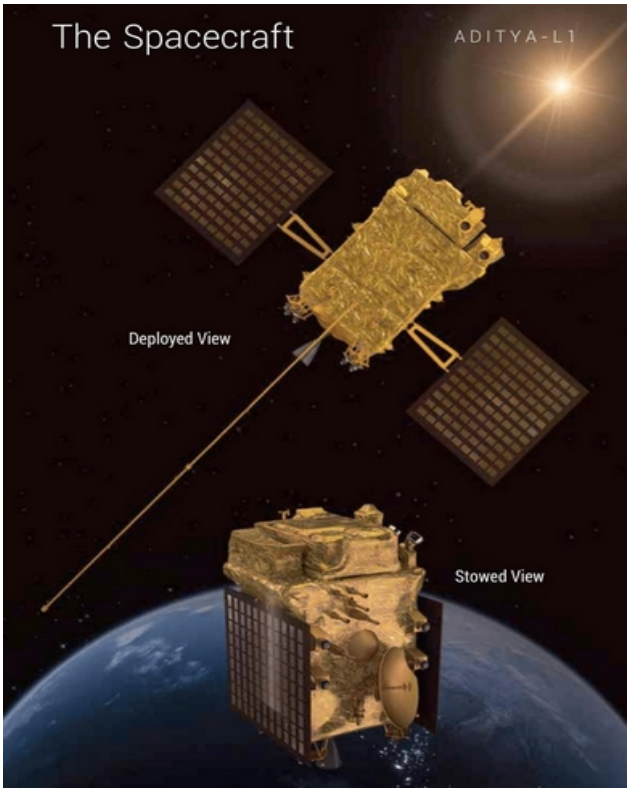
Source: The Hindu, Dt. 07 Jan 2026

On the second anniversary of India's maiden solar mission, Aditya-L1 reaching the Lagrangian point (L1), the Indian Space Research Organisation (ISRO) on Tuesday (January 6, 2026) made the Announcement of Opportunity (AO) soliciting proposals for the first AO cycle observations.

The Aditya-L1 spacecraft reached the L1 point on January 6, 2024, 127 days after it was launched on September 2, 2023, and since then has been making continuous and comprehensive observations of the Sun from the Sun–Earth L1 point. According to ISRO scientific data from the mission are regularly released in public domain for global scientific utilization.

To maximise

"At present there are more than 23 TB data in public domain and several important scientific results have been published in International peer reviewed journals. To further maximise the scientific return from this unique mission, the ISRO has released the first AO inviting proposals from the Indian solar physics community for Aditya-L1 observation time," ISRO said.



ISRO to launch Aditya-L1, the first space-based Indian observatory to study the Sun.

It added that this L1 point, located approximately 1.5 million kilometers away from Earth, offers the unique advantage of continuous, uninterrupted observation of the Sun, free from eclipses or occultation.

This announcement soliciting proposals for Aditya-L1 observation is open to Indian scientists and researchers residing and working at institutes, universities and colleges in India who are involved

in research in the area of solar science and are equipped to submit proposals as Principal Investigators (PIs) for solar observations with necessary scientific and technical justification and can analyse the data, if observation is made based on approvals.

Seven payloads

There are seven payloads onboard Aditya-L1: Visible Emission Line Coronagraph (VELC); Solar Ultraviolet Imaging Telescope (SUIT); Solar Low Energy X-ray Spectrometer (SoLEXS); High Energy L1 Orbiting X-ray Spectrometer (HEL1OS); Aditya Solar wind Particle Experiment (ASPEX); Plasma Analyser Package For Aditya (PAPA); and Advanced Tri-axial High Resolution Digital Magnetometers

Under the first AdityaL1 AO, eligible candidates can utilize observation time from the VELC and the SUIT payloads. For this, proposals must be submitted electronically through the Aditya-L1 Proposal Processing System (ALPPS) hosted at the Indian Space Science Data Centre (ISSDC). Approved observations for this first AO cycle will be conducted between April 2026 and June 2026.

https://www.thehindu.com/sci-tech/science/isro-invites-proposals-from-indian-scientists-to-analyse-data-from-aditya-l1-mission/article70476849.ece

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Supercomputer simulation of ice formation gives evidence of paradoxical phenomenon of water

Source: Press Information Bureau, Dt. 06 Jan 2026

Scientists have developed the first supercomputer-powered simulations to capture the long existing paradox of water that had eluded scientists for long-- hotter water freezing faster than colder water, a phenomenon technically called Mpemba effect.

This research published in the journal Communication Physics can provide new insights into phenomena such as relaxation of materials due to sudden temperature changes technically called out-of-equilibrium phenomena and also can lead to diverse applications, such as giving a new perspective to thermal control in next generation electronic or defining better cooling strategies. Aristotle, in the Meterological, wrote, “the fact that water has previously been warmed contributes to its freezing quickly”.

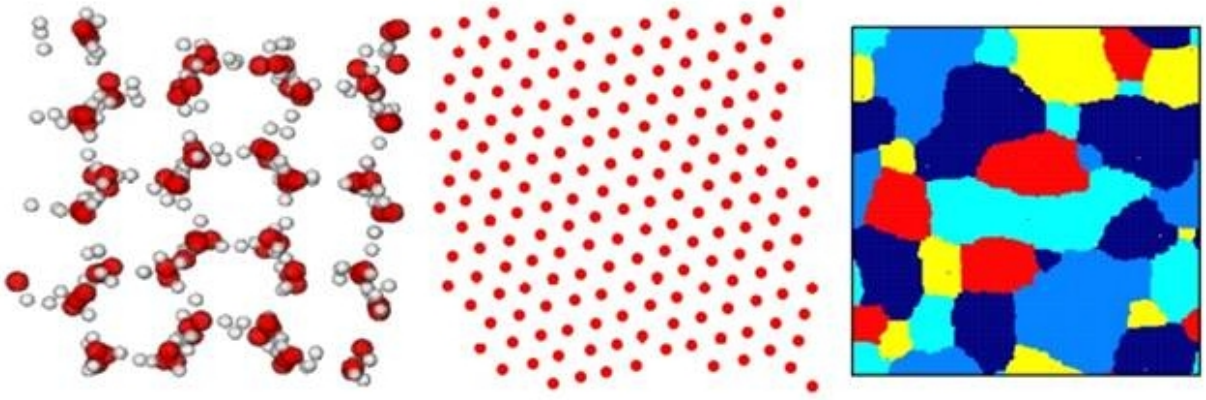

Fig 1: Snapshots from the phase transitions in the TIP4P/Ice model of water, the 2D Lennard Jones model and the Potts model

The phenomenon forgotten over time was rediscovered in the last century by Erasto Mpemba after whom it is now named. Since then, there has been considerable interest in understanding it and identifying whether the effect is specific only to phase transitions in water.

Even though it is recently shown that the effect appears during phase transitions in several other systems, the understanding remains largely elusive. Furthermore, quite interestingly, the case of water has recently become controversial, even at the experimental level. Due to the demanding nature of water simulations, there exists no computational study to resolve the debate.

Researchers from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), an autonomous institute of the Department of Science and Technology (DST) has used supercomputers to develop the first simulation of ice formation proving the Mpemba effect of water and also demonstrating that it can appear during fluid-to-solid transitions in systems other than water.

They have explained that when water cools, it can get stuck in intermediate states of short-lived molecular arrangements before true ice begins to grow. Different starting temperatures get stuck for varied lengths of time. Hotter water can sometimes “choose” a quicker path to nucleation, the birth of ice, bypassing the delays that colder water suffers. The best explanation yet of why “hot can freeze faster than cold” is one major step into the world of nonequilibrium physics.

Publication link: https://doi.org/10.1038/s42005-025-02251-6

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2211815&reg=3&lang=1

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Study of stellar Twins reveal secrets of evolution and future of stars

Source: Press Information Bureau, Dt. 06 Jan 2026

A study of a type of stellar twin called W Ursae Majoris–type contact binaries that orbit each other closely gives new insights into how binary stars evolve and their eventual fate. W Ursae Majoris (W UMa) stars are short-period, dumbbell-shaped binaries in which the two stars are in contact. They are so close, in fact, that they share a single outer atmosphere and they orbit around each other. These stars act as "natural laboratories" as they assist in precise determinations of fundamental stellar parameters such as masses, radii, and temperatures, crucial for testing theories about how stars evolve over time.

Astronomers from Aryabhatta Research Institute of Observational Sciences (ARIES), an autonomous research institute under the Department of Science & Technology (DST), Government of India and Physical Research Laboratory (PRL), Ahmedabad used data from ARIES’s 1.3m Devasthal Fast Optical Telescope (DFOT) and NASA’s TESS (Transiting Exoplanet Survey Satellite) space telescope to create detailed light curves of the stars. The light curves essentially show how the total amount of light emitted by the system varies with time.

The team led by Yogesh Chandra Joshi from ARIES and Alexander Panchal from PRL explored four W Ursae Majoris-type (W UMa) contact stars. Their study revealed important features like changes in the stars’ orbits, how mass is transferred between the stars and evidence of surface activity like star spots. Detailed modeling of the light patterns from the stars showed that the stars

share their outer layers, their orbits shift slightly over time, as if tugging and pulling on one another and that some stars appear lopsided—brighter on one side than the other.

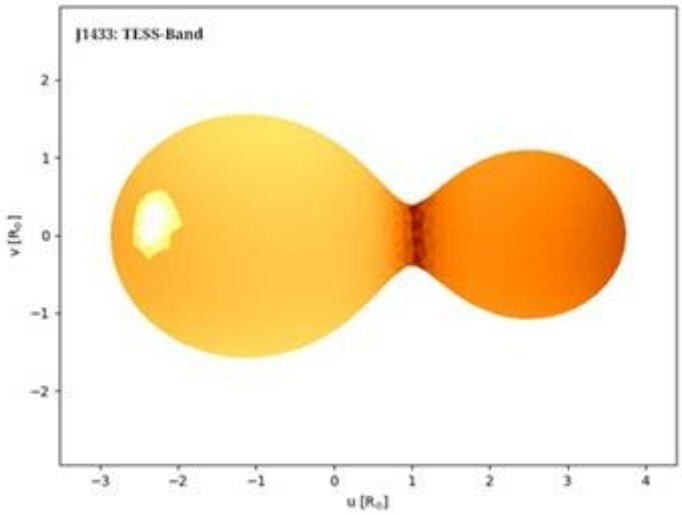

Fig: *The spot distribution in binary star J143358.7+053953*

The uneven brightness points at dark magnetic star spots similar to star spots. These spots rotate in and out of view, creating bumps in the light curves. This also suggests the stars have strong magnetic activity. In one of the binary systems, scientists also found specific light signals (called H-alpha and H-beta) that clearly show activity in the star's outer layer, which is linked to magnetic events like star spots and stellar flares.

By combining state-of-the-art photometric monitoring with light signatures (spectral diagnostics), the study published in Astrophysical Journal not only provided new insights into how binary stars evolve and their eventual fate, but also helped improve our understanding of empirical calibrations of the mass–radius relation of low-mass stars. This research is important and has far-reaching applications, particularly in exoplanet transit studies.

Publication link: https://iopscience.iop.org/article/10.3847/1538-4357/add34d

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2211818&reg=3&lang=1

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