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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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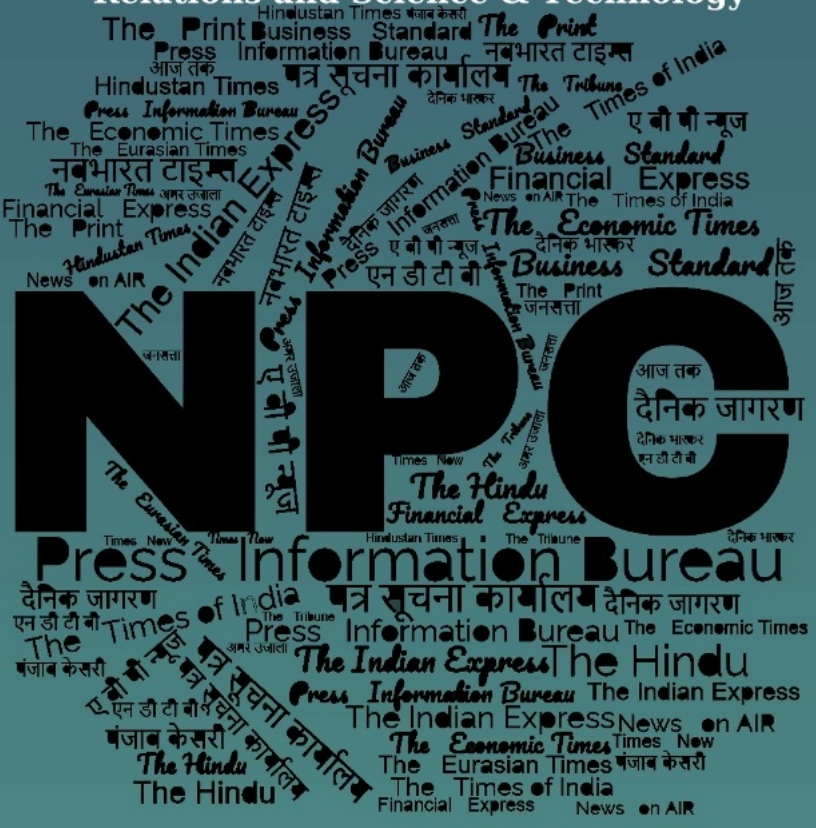

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DRDO News

ड्रोन से दागी गई मिसाइल, परीक्षण हुआ सफल

Source: Dainik Jagran, Dt. 20 May 2026

भारत की रक्षा क्षमताओं को मजबूती प्रंदान करते हुए रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने ड्रोन से दागी जाने वाली स्वदेशी प्रिसिजन गाइडेड मिसाइल "यूएलपीजीएम-वी3" का अंतिम परीक्षण सफलतापूर्वक पूरा कर लिया है। यह परीक्षण आंध्र प्रदेश के कुरनूल स्थित डीआरडीओ परीक्षण रेंज में किया गया। रक्षा मंत्रालय के अनुसार, मिसाइल का परीक्षण दो मोड- हवा से जमीन और हवा से हवा- में किया गया।

Fig: *परीक्षण रेंज में यूएवी से प्रक्षिपित यूएलपीजीएम-वी3 मिसाइल*

परीक्षण के दौरान एक आधुनिक ग्राउंड कंट्रोल सिस्टम का इस्तेमाल किया गया, जो मिसाइल की तैयारी, नियंत्रण और लांच प्रक्रिया को स्वचालित तरीके से संचालित करता है। यह मिसाइल टैंक रोधी भूमिका के अलावा ड्रोन, हेलीकाप्टर और अन्य हवाई लक्ष्यों को भी निशाना बना सकती है। रक्षा मंत्री राजनाथ सिंह ने सफल परीक्षण को बड़ी उपलब्धि बताया।

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DRDO successfully tests UAV-launched precision guided missile

Source: The Times of India, Dt. 20 May 2026

In a boost to India's self-reliance in defence, Defence Research & Development Organisation (DRDO) has successfully completed the final deliverable configuration development trials of unmanned aerial vehicle launched precision guided missile (ULPGM)-V3 in air-to-ground and air-to-air modes at the DRDO test range near Kurnool in Andhra Pradesh.

Fig: *Successful trials UAV launched precision guided missile (ULPGM)-V3 in air-to-ground and air-to-air modes*

The trials were carried out using an integrated ground control system (GCS) to command and control the ULPGM weapon system. The GCS features state-of-the-art technologies to automate readiness and launch operations.

The ULPGM missile has been developed by **Research Centre Imarat (RCI)** Hyderabad as the nodal lab along with other DRDO labs like **Defence Research & Development Laboratory (DRDL)** Hyderabad, **Terminal Ballistics Research Laboratory (TBRL)**, Chandigarh and **High Energy Materials Research Laboratory (HEMRL)**, Pune.

DRDO has partnered with two production agencies — Bharat Dynamics Limited, Hyderabad and Adani Defence Systems & Technologies Limited, Hyderabad — for the development and production of the missiles. The system has been integrated on UAVs developed by Newspace Research and Technologies, Bengaluru, for current trials. The missile has been produced entirely through the Indian defence ecosystem involving a large number of MSMEs and other industries.

The trials confirmed a fully mature domestic supply chain, equipped for immediate serial mass production. Defence minister Rajnath Singh and DRDO chief Samir V Kamat have complimented DRDO, PSUs, production partners and industry for the successful development trials of ULPGM-V3.

https://timesofindia.indiatimes.com/defence/news/drdo-successfully-tests-uav-launched-precision-guided-missile/articleshow/131207985.cms

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Defence News

Army chief hails Operation Sindoor as ‘one coherent national act’

Source: Hindustan Times, Dt. 20 May 2026

Operation Sindoor, India’s response to the April 22 Pahalgam terror strike, delivered military precision, diplomatic signalling and economic resolve as one coherent national act, army chief General Upendra Dwivedi said on Tuesday.

“It struck deep, dismantled terror infrastructure, punctured a long-standing strategic assumption (Pakistan’s nuclear blackmail), and then stopped, deliberately and purposefully,” he said at a seminar organised by the think tank Centre for Land Warfare Studies.

Operation Sindoor, which began in the early hours of May 7, 2025, was New Delhi’s muscular response to the Pakistan-backed Pahalgam terror attack that killed 26 people. It triggered four days of strikes and counterstrikes with fighter jets, missiles, drones, long-range weapons and heavy artillery before the two sides reached an understanding on stopping all military action on May 10.

“The deliberate halt after 88 hours was smart power in its most complete expression, knowing exactly which instrument to apply, at what intensity, and precisely when to convert a military moment into a strategic one,” the army chief said.

On May 8, defence minister Rajnath Singh said Operation Sindoor signalled India’s collective resolve and new military ethos, and the “short-duration, deep-penetration, high-intensity, and high-impact operation” compelled Pakistan to surrender.

Dwivedi said that strategic vulnerability today is not military inferiority but dependence on foreign supply chains, critical minerals, and digital infrastructure. “Resilience means systematically eliminating those dependencies not as an economic preference but as a security imperative. It involves strategic partnership with like-minded nations, as also encouraging government strategic partnership with level one industries for sustainable production lines.”

Whoever commands the technology stack in the next decade will tend to command the conflict outcomes, he added. “We must not merely absorb emerging technologies. We must indigenise, operationalise, and lead in them. As they say, the follower pays the price, the leader sets the terms.”

Contemporary conflicts now impose sustained demands not only on armed forces but also on industrial production, research systems, and governance structures, he said. “We must build a defence industrial base that is not merely self-sufficient but strategically competitive, converting national security requirements into industrial capacity and ultimately into export leverage.”

https://www.hindustantimes.com/india-news/army-chief-hails-operation-sindoor-as-one-coherent-national-act-101779218525597.html

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National security linked to economic growth; strategic self-reliance a must: Gen. Dwivedi

Source: The Hindu, Dt. 20 May 2026

India's long-term economic growth and global rise will depend on strong national security, Chief of the Army Staff Upendra Dwivedi said on Tuesday (May 19, 2026), underlining that security has become the foundation for prosperity in an uncertain global environment.

Addressing a seminar on 'Security to Prosperity: Smart Power for Sustained National Growth' at the Manekshaw Centre, General Dwivedi said the world order is witnessing growing geopolitical competition, weaponisation of supply chains and technological dependencies that directly affect economic stability and national decision-making.

"Security is no longer a cause that prosperity must bear. It is the precondition for prosperity to commence its progressive journey," he said, stressing that India must combine military strength, economic resilience, technological advancement and diplomatic outreach into a coherent national strategy.

The seminar, organised by Centre for Land Warfare Studies, brought together senior military officials, diplomats, policymakers, industry leaders and strategic experts to deliberate on the integration of various instruments of national power.

General Dwivedi warned that dependence on foreign supply chains, critical minerals and digital infrastructure has emerged as a major strategic vulnerability for nations. He said countries unable to produce critical technologies and defence systems domestically could eventually lose strategic autonomy and economic leverage.

Referring to recent global conflicts and disruptions in trade routes, the Army Chief noted that modern warfare now extends beyond battlefields and places sustained pressure on industrial production, governance systems and innovation ecosystems.

Highlighting the importance of indigenous capability development, he called for building a defence industrial base that is not only self-reliant but globally competitive. According to him, defence manufacturing and advanced technologies can become drivers of economic growth, innovation and exports.

General Dwivedi stressed the need to rapidly scale emerging technologies such as artificial intelligence, cyber capabilities, quantum systems, autonomous platforms and advanced materials. He said the shrinking timeline from laboratory innovation to battlefield deployment requires closer coordination among government agencies, private industry and academia.

He added that strategic autonomy does not mean isolation, but the freedom to engage globally while safeguarding national interests through economic and technological resilience.

https://www.thehindu.com/news/national/operation-sindoor-reflected-smart-power-in-its-most-complete-expression-says-army-chief-dwivedi/article70997495.ece

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अमेरिका ने भारत के साथ 42.82 करोड़ डालर के दो रक्षा सौदों को दी स्वीकृति

Source: Dainik Jagran, Dt. 20 May 2026

अमेरिका ने भारत के लिए 42.82 करोड़ डालर के दो संभावित विदेशी सैन्य बिक्री पैकेज को मंजूरी दी है। इसके तहत 9.82 करोड़ अमेरिकी डालर की अनुमानित लागत पर अपाचे हेलीकाप्टरों के लिए सहायक सेवाएं व 23 करोड़ डालर की लागत से एमए777ए2 अल्ट्रा लाइट होवित्जर तोपों को रखरखाव सेवाएं उपलब्ध कराई जाएंगी।

अमेरिकी विदेश विभाग ने बताया कि अपाचे सहायक सेवाएं मूल निर्माता बोइंग और लाकहीड मार्टिन प्रदान करेंगे। वहीं होवित्जर की सहायक सेवाओं के लिए ब्रिटेन के कंब्रिया स्थित "बीएई सिस्टम्स' होगा। उसने बताया कि भारत ने एच-64ई अपाचे के रखरखाव के लिए सहायता सेवाएं, अमेरिकी सरकार और ठेकेदार की इंजीनियरिंग, तकनीकी और लाजिस्टिक्स सहायता सेवाएं, का प्रशिक्षण और लाजिस्टिक्स तथा कार्यक्रम सहायता से जुड़े अन्य संबंधित तत्व खरीदने का अनुरोध किया था। इसके अलावा एम777ए2 अल्ट्रा-लाइट होवित्जर तोपों के लिए भी दीर्घकालिक रखरखाव सहायता सेवाएं खरीदने का अनुरोध किया था। अपाचे हेलीकाप्टरों और होवित्जरों के लिए सहायक सेवाओं की संभावित बिक्री विदेशी सैन्य बिक्री व्यवस्था के तहत की जाएगी। विदेश विभाग ने कहा कि हेलीकाप्टरों और होवित्जर की प्रस्तावित बिक्री अमेरिका और भारत के बीच रणनीतिक संबंध मजबूत बनाने में सहायक होगी।

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Boosting defence ties, US clears Apache, howitzer support services for India

Source: The Indian Express, Dt. 20 May 2026

The US has approved the proposed sale of support services and related equipment for Apache helicopters to India at an estimated cost of $198.2 million, noting that this will improve Delhi's "capability to meet current and future threats, strengthen its homeland defence, and deter regional threats". In a statement, the US Department of State said it also approved a possible sale of sustainment support for M777A2 Ultra-Light Howitzers for an estimated cost of $230 million. The developments come at a time when the US and India are in the final stages of negotiating a comprehensive bilateral trade agreement, after having established a framework for an interim trade pact.

In November last year, the US approved the sale of Excalibur projectiles, the Javelin missile system, and other related equipment to India for over $90 million. Around the same time, India signed Letters of Offer and Acceptance (LOAs) with the US for sustainment support of the Indian Navy's fleet of MH60R helicopters through Follow on Support and Follow on Supply Support for a period of five years worth Rs 7,995 crore. Additionally, the Indian Defence Acquisition Committee, earlier this year, cleared the acquisition of six P-8I maritime surveillance and anti-submarine warfare aircraft from the US for the Indian Navy.

According to a statement from the Department of State, India had requested to buy AH-64E Apache sustainment support services; US government and contractor engineering, technical, and logistics support services; technical data and publications; personnel training; and other related elements of logistics and programme support. It said the proposed sale will improve “India’s capability to meet current and future threats, strengthen its homeland defence, and deter regional threats. India will have no difficulty absorbing these articles and services into its armed forces.” It noted that the principal contractor will be Boeing and Lockheed Martin.

In a separate statement, it said India had requested to buy long-term sustainment support for M777A2 Ultra-Light Howitzers, which includes ancillary items; spares; repair and return; training; technical assistance; field service representative; depot capability; and other related elements of logistics and program support. The principal contractor for this will be BAE Systems.

“This proposed sale will support the foreign policy and national security objectives of the United States by helping to strengthen the US-Indian strategic relationship and to improve the security of a major defense partner which continues to be an important force for political stability, peace, and economic progress in the Indo-Pacific and South Asia regions,” the statement said about both the sales.

“The proposed sale of this equipment and support will not alter the basic military balance in the region,” it said. In October last year, the two countries signed the ‘framework for the US-India major defence partnership’, signalling stable ties in the defence sector.

The vision for bilateral defence cooperation was encapsulated in the September 2013 Joint US-India Declaration on Defence Cooperation and the 2015 Framework for the US-India Defence Relationship, in which the two countries committed themselves to increasing cooperation in the sector.

Between 2016 and 2020, the two sides signed four more agreements, including the Logistics Exchange Memorandum of Agreement (LEMOA) in 2016, the Communications Compatibility and Security Agreement (COMCASA) in 2018, and the Basic Exchange and Cooperation Agreement (BECA) in 2020. In August 2024, both countries signed a Security of Supply Arrangement (SOSA) and a Memorandum of Agreement regarding the Assignment of Liaison Officers, among other bilateral military agreements that have enhanced defence and security cooperation.

In September last year, Indian and American troops participated in a two-week military exercise “Yudh Abhyas” at Fort Wainwright in Alaska. A week before that, the US submarine support ship USS Frank Cable visited Chennai on a scheduled port visit – the Military Sealift Command’s second to the region in two years.

Big-ticket Indian military procurements from the US include 31 MQ-9B High Altitude Long Endurance (HALE) Remotely Piloted Aircraft Systems, the deal for which was inked in October 2024, MH-60R Seahawk multi-role helicopters, Sig Sauer rifles, and M777 ultra-light howitzers. Negotiations are underway to manufacture GE F-414 jet engines in India for the LCA MK 2 fighters, and deliveries of the GE-F404 engines for the LCA Tejas Mark-1A are underway.

https://indianexpress.com/article/india/us-approves-apache-helicopter-m777-howitzer-sustainment-deals-india-10697996/

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India, Nordic nations upgrade ties with green tech, def focus

Source: The Times of India, Dt. 20 May 2026

The third India-Nordic summit saw the two sides upgrade their relationship to a green technology and inn-ovation strategic partnership and sign an agreement to leverage India-EU FTA and India-EFTA TEPA, which envisages $100 billion investment into India and came into effect last year, for greater trade, technology and investment linkages. As the PMs of Nordic countries - Denmark, Sweden, Finland, Iceland and Norway - held talks with PM Narendra Modi in Oslo, they also concluded six other agreements in areas like climate action, Arctic cooperation, talent mobility and defence industrial collaboration.

The PM said that in this era of global tension and conflict, India and the Nordic countries would continue to advocate for a rules-based global order. He also underscored India's "clear and united" position on terrorism that there could be "no compromise and no double standards". "And whether in Ukraine or West Asia, we will continue to support efforts for an early end to conflict and peace," he said, adding that both sides agreed that reform of multilateral institutions was both necessary and urgent. Nordic leaders also reiterated their support for India's permanent membership in a reformed and expanded UN Security Council. According to the Indian govt, the defence agreement will tap into investment opportunities, including 100% FDI being offered to Nordic defence firms in Indian defence industrial corridors.

Modi said that with ambitious agreements like FTA and TEPA, both sides were ushering in a new golden era in relations. "We have decided to elevate the India-Nordic relationship to a green technology and innovation strategic partnership. Through this, we will combine Iceland's geothermal and fisheries, Norway's blue economy and Arctic, and the maritime and sustainability expertise of all Nordic countries with India's scale, ensuring a better future for the entire world," said the PM.

"And by forging this unique strategic partnership between us, we will combine Sweden's advanced manufacturing and defence, Finland's telecom and digital technology, and Denmark's cybersecurity and health-tech, with India's talent, to develop trusted solutions for the entire world," he added. The PM also said an important pillar of the partnership was extensive research and innovation ties. To strengthen this, he said, both sides would enhance linkages between universities, labs, and start-up ecosystems. "India will keep working with the Nordic nations for more trade and investment, sustainable growth, greater innovation, climate action and cooperation in the Arctic," he said in a post on X.

https://timesofindia.indiatimes.com/india/india-nordic-nations-upgrade-ties-with-green-tech-def-focus/articleshow/131213302.cms

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India, Vietnam discuss deepening defence ties as Rajnath Singh meets Phan Van Giang in Hanoi

Source: The Indian Express, Dt. 20 May 2026

Defence Minister Rajnath Singh on Tuesday met his Vietnamese counterpart, General Phan Van Giang, in Hanoi, where they reviewed the growing partnership between the two countries and discussed ways to deepen cooperation in maritime security, defence industry, training, and

regional stability. As per a statement issued by the Ministry of Defence, the two sides exchanged views on regional and global security developments of mutual interest and emphasised the importance of maintaining peace, stability, security, safety, and freedom of navigation in the Indo-Pacific region.

The statement added that they discussed avenues to expand cooperation in areas including military training, defence industry collaboration, maritime security, capacity building, United Nations peacekeeping, cyber security, and high-level exchanges. They also agreed to enhance cooperation between the defence forces through regular dialogues, joint exercises and exchange programmes.

The bilateral defence engagements have expanded over the years and include wide-ranging contacts between the two countries, such as Defence Policy Dialogues, military-to-military exchanges, high-level visits, capacity-building and training programmes, cooperation in UN peacekeeping, ship visits, and bilateral exercises.

Fig: *Defence Minister Rajnath Singh and General Phan Van Giang in Hanoi.*

In June 2022, when Singh last visited Hanoi, both countries signed a Joint Vision Statement on India-Vietnam Defence Partnership Towards 2030 and also inked a memorandum of understanding (MoU) on mutual logistics support to strengthen bilateral defence cooperation. India had handed over 12 high-speed guard boats to Vietnam at the time and also announced gifting two simulators and a monetary grant towards setting up a language and IT lab at the Air Force Officers Training School.

In July 2023, India gifted the INS Kirpan to Vietnam, complete with its entire weapon complement, after decommissioning it following 32 years of service. This marked the first instance where India gifted an indigenously built missile corvette to Vietnam. The development was significant amid a growing Chinese influence in the South China Sea, which had led to territorial disputes with Vietnam. Vietnam, among others, have been looking at buying BrahMos supersonic missiles from India.

The statement noted that Singh reaffirmed the commitment to strengthening India's enhanced comprehensive strategic partnership with Vietnam, while reiterating India's resolve to support that country's defence modernisation and capacity enhancement initiatives. "General Phan Van Giang appreciated India's continued support and underscored the long-standing friendship and growing strategic partnership between the two nations," it added.

Language lab at Air Force Officers' College

The statement further noted that the two defence ministers virtually inaugurated the language lab at Air Force Officers' College in Vietnam, which has been established with Indian assistance. Singh also announced the setting up of an artificial intelligence lab at Telecommunications University in Nha Trang. Additionally, the Military College of Telecommunications Engineering, India, and Telecommunications University, Vietnam, also signed an MoU in the field of artificial intelligence and quantum technology.

Singh also spoke to Vietnamese President To Lam and reiterated India's commitment to further deepening bilateral cooperation across diverse sectors, including defence and security, trade and investment, maritime cooperation, connectivity, digital transformation and people-to-people exchanges.

"The two leaders reaffirmed the strong and enduring friendship between India and Vietnam, rooted in shared civilisational links, mutual trust and common strategic interests. They expressed satisfaction at the continued growth of the India–Vietnam Comprehensive Strategic Partnership," the defence ministry statement said.

https://indianexpress.com/article/india/rajnath-singh-vietnam-visit-hanoi-phan-van-giang-brahmos-deal-ai-quantum-mou-10697622/

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छोटी दूरी में भी सेना की मूवमेट ट्रेन से ही

Source: NavBharat Times, Dt. 20 May 2026

देश के अलग-अलग हिस्सों में तैनात भारतीय सेना की अलग-अलग यूनिट के मूवमेंट के लिए अब ज्यादातर ट्रेन का इस्तेमाल किया जाएगा। इससे पेट्रोलडडीजल की बचत तो होगी ही साथ ही वक्त भी बचेगा। हर साल सेना की कई यूनिट एक जगह से दूसरी जगह ट्रांसफर होती हैं और एकयूनिट के मूवमेंट में 40 से लेकर 70 तक गाड़ियों का इस्तेमाल होता है।

प्रधानमत्री नरेंद्र मोदी ने अपील की थी कि पेट्रोल-डीजल का इस्तेमाल समझदारी से किया जाए और फ्यूल की बचत की जाए। सेना सूत्रों के मुताबिक इसका सेना की ट्रेनिंग या ऑपरेशनल तैयारियों में कोई फर्क नहीं पड़ा है लेकिन पेट्रोल-डीजल कम खर्च करने के लिए अब यूनिट के मूवमेंट में ट्रेन का ज्यादा इस्तेमाल किया जाएगा।

ढाई से तीन साल में बदलती है पोस्ट्िंग: सेना की यूनिट की पोस्टिंग अमूमन ढाई से तीन साल में बदलती हती है। यानी ढाई से तीन साल में यूनिट एक जगह से दूसरी जगह जाती है। अलग-अलग आर्म

की यूनिट के मूवमेंट के लिए बड़ी संख्या में गाड़ियों की जरूरत होती है। अगर एक छोटी यूनिट है तो उसके लिए करीब 40-50 गाड़ियों की जरूरत होती है।

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रणनीतिक साझेदारी के युग में भारत और इटली

-by नरेंद्र मोदी और जॉर्जिया मेलोनी, भारत और इटली के शासनाध्यक्ष

Source: Dainik Jagran, Dt. 20 May 2026

भारत और इटली के संबंध अबभाफ निर्णायक दौर में पहुंच चुके हैं। हाल के वर्षों में दोनों देशों के रिश्तों में अभूतपूर्व तेजी से विस्तार हुआ है। ये संबंध केवल सौहार्दपूर्ण मित्रता तक सीमित नहीं, बल्कि अब स्वतंत्रता और लोकतंत्र के मूल्यों तथा भविष्य के साझा दृष्टिकोण पर आधारित एक विशेष रणनीतिक साझेदारी में बदल चुके हैं। जब पूरी दुनिया की व्यवस्था बड़े बदलाव के दौर से गुजर रही है, तब इटली और भारत की साझेदारी उच्च राजनीतिक और संस्थागत स्तर पर लगातार संवाद से आगे बढ़ रही है। आपसी संबंध अब एक नए और अधिक व्यापक स्तर पर पहुंच रहे हैं, जिसमें दोनों देशों की आर्थिक ताकत, सामाजिक रचनात्मकता और हजारों वर्षों पुरानी सभ्यतागत विरासत शामिल है।

हमारा सहयोग इस साझा समझ को दर्शाता है कि 21वीं सदी में समृद्धि और सुरक्षा इस पर निर्भर करेगी कि देश कितनी क्षमता से नवाचार करें, ऊर्जा परिवर्तन का प्रबंधन करें और अपनी रणनीतिक आत्मनिर्भरता को मजबूत करें। इसी उद्देश्य से हमने अपने द्विपक्षीय संबंधों को और गहरा तथा विविधतापूर्ण बनाने का संकल्प लिया है, ताकि नए लक्ष्यों कोहासिल किया जा सके और दोनों देशों की पूरक शक्तियों का बेहतर उपयोग हो सके। हम इटली की डिजाइन क्षमता, बेहतरीन विनिर्माण कौशल और विश्वस्तरीय सुपरकंप्यूटर तकनीक, जो उसे एक औद्योगिक महाशक्ति बनाती है, को भारत की तेज आर्थिक वृद्धि, इंजीनियरिंग प्रतिभा, बड़े पैमाने की क्षमता, नवाचार और १00 से अधिक यूनिकार्न तथा 2 लाख स्टार्टअप वाले उद्यमी इकोसिस्टम के साथ जोड़कर एक शक्तिशाली तालमेल बनाना चाहते हैं। यह ऐसा साझा मूल्य निर्माण है, जिसमें दोनों देशों कीऔद्योगिक ताकतें एक-दूसरे कोऔर अधिक मजबूत बनाती हैं।

यूरोपीय संघ और भारत के बीच मुक्त व्यापार समझौता (एफटीए) दोनों दिशाओं में व्यापार और निवेश बढ़ाने का रास्ता खोलता है। हमारा लक्ष्य 2029 तक भारत और इटली के बीच व्यापार को 20 अरब यूरो से आगे ले जाना है। इसमें रक्षा एवं एयरोस्पेस, स्वच्छ प्रौद्योगिकी, मशीनरी, आटोमोबाइल पुर्जे, रसायन, दवाइयां, वस्त्र, कृषि-खाद्य क्षेत्र और पर्यटन समेत कई क्षेत्रों पर विशेष ध्यान रहेगा। "मेड इन इटली" हमेशा से दुनिया भर में उत्कृष्टता का प्रतीक रहा है और आज इसका स्वाभाविक तालमेल "मेक इन इंडिया' पहल के उच्च गुणवत्ता वाले लक्ष्यों के साथ दिखाई देता है। इसी संदर्भ में भारत के लिए उत्पादन में इतालवी कंपनियों की बढ़ती रुचि और इटली में भारतीय उद्योगों की बढ़ती मौजूदगी, जो अब दोनों पक्षों की ओर से मिलाकर 000

से अधिक हो चुकी है, एक सकारात्मक संकेत है। यह हमारी सप्लाई चेन के एकीकरण को और मजबूत करेगी।

तकनीकी नवाचार हमारी साझेदारी का सबसे महत्वपूर्ण आधार है। आने वाले दशकों में दुनिया एक बड़े तकनीकी बदलाव के दौर से गुजरेगी, जिसमें कृत्रिम बुद्धिमत्ता (एआइ), क्वांटम कंप्यूटिंग, उन्नत विनिर्माण, महत्वपूर्ण खनिज और डिजिटल बुनियादी ढांचे जैसे क्षेत्रों में तेज प्रगति होगी। भारत का तेजी से बढ़ता नवाचार तंत्र और कुशल पेशेवरों की बड़ी संख्या तथा इटली की उन्नत औद्योगिक क्षमता दोनों देशों के सहयोग को स्वाभाविक और रणनीतिक सहयोगी बनाती है। दोनों देशों के विश्वविद्यालयों और शोध संस्थानों के बीच साझेदारी भी इसे मजबूती देगी।

भारत का डिजिटल पब्लिक इन्फ्रास्ट्रक्चर (डीपीआइ) पहले से ही दुनिया के कई देशों, खासकर "ग्लोबल साउथके देशों के लिए आकर्षण का केंद्र बन रहा है। विशेष रूप से एआइ आज हमारे समाज और वैश्विक अर्थव्यवस्था पर गहरा प्रभाव डाल रही है। इटली और भारत लंबे समय से इस दिशा में सहयोग कर रहे हैं, ताकि एआइ का विकास जिम्मेदार और मानव-केंद्रित हों। भारत और इटली एआइ को समावेशी विकास का एक शक्तिशाली माध्यम मानते हैं, खासकर ग्लोबल साउथके देशों के लिए। डिजिटल पब्लिक इन्फ्रास्ट्रक्चर और आसान, बहुभाषी तकनीक के जरिए एआइ सामाजिक और डिजिटल खाइयों को कम कर सकता है। भारत की तकनीकके केंद्र में मानव को रखने की सोच और इटली की मानव-केंद्रित "एल्गोर-थिक्स" की अवधारणा, जो उसकी मानवतावादी परंपरा पर आधारित है, पर आगे बढ़ते हुए हमारी साझेदारी का उद्देश्य यह सुनिश्चित करना है कि एआइ सामाजिक सशक्तीकरण का, माध्यम बने।

हमारा दृष्टिकोण भारत की विशाल डिजिटल क्षमता को इटली की नैतिक और औद्योगिक विशेषज्ञता के साथ जोड़ता है, ताकि तकनीक मानव गरिमा की सेवा कर सके। सुरक्षित डिजिटल सहयोग, क्षमता निर्माण और मजबूत साइबर ढांचे से जुड़ी श्रेष्ठ कार्यप्रणालियों कोसाझा करके हम एक ऐसा खुला, भरोसेमंद और समान डिजिटल वातावरण बनाना चाहते हैं, जिसमें हर देश एआइ का उपयोग कर सके और उससे लाभ उठा सके। यही सोच इटली की जी7 अध्यक्षता और 2026 में नई दिल्ली में आयोजित एआइ इंपैक्ट समिट के निष्कर्षों का मुख्य आधार है। एआइ को इंसानों की ओर से इंसानों के लिए बनाई गई तकनीक मानने का अर्थ है यह स्पष्ट करना कि तकनीक न तो मनुष्य की जगह ले सकती है और न ही उसके मूल अधिकारों कोकमजोर कर सकती है। इसका उपयोग जनमत को प्रभावित करने या लोकतांत्रिक प्रक्रियाओं में हस्तक्षेप करने के लिए भी नहीं होना चाहिए। आज की तेजी से जुड़ी हुई दुनिया में स्वतंत्रता और मानव गरिमा की रक्षा का हमारा दृष्टिकोण इसी चुनौती पर आधारित है। हमारा सहयोग अंतरिक्ष क्षेत्र तक भी फैला हुआ है। अंतरिक्ष अनुसंधान और सैटेलाइट तकनीक में भारत की उल्लेखनीय प्रगति तथा इटली की एयरोस्पेस इंजीनियरिंग में उत्कृष्टता, संयुक्त परियोजनाओं और नई पीढ़ी की तकनीक के विकास के लिए बड़े अवसंर प्रदान करती है।

राष्ट्रों की समृद्धि सुनिश्चित करने के लिए सुरक्षा और स्थिरता बेहद आवश्यक हैं। इसलिए इटली और भारत रक्षा, सुरक्षा और रणनीतिक तकनीक जैसे क्षेत्रों में अपने सहयोग को और मजबूत करना चाहते हैं। हमारा

सहयोग महत्वपूर्ण समुद्री मार्गों की सुरक्षा सुनिश्चित करने तथा आतंकवाद, अंतरराष्ट्रीय अपराध नेटवर्क, मादक पदार्थों की तस्करी, मानव तस्करी और साइबर अपराध जैसी चुनौतियों के खिलाफ मजबूती बढ़ाने में मदद करेगा। ऊर्जा हमारी साझेदारी काएक और महत्वपूर्ण आधार है, दुनिया में ऊर्जा के विविध स्रोतों कीओर बढ़ रहे बदलाव के लिए नवाचार, निवेश और सहयोग की आवश्यकता है।

भारत और इटली नवीकरणीय ऊर्जा से लेकर हाइड्रोजन तकनीक तथा स्मार्ट ग्रिड से लेकर मजबूत बुनियादी ढांचे तक कई क्षेत्रों में साथ काम कर रहे हैं। ग्रीन हाइड्रोजन निर्यात का वैश्विक केंद्र बनने की भारत की पहल अपार संभावनाएं रखती हैं। यह इटली की नवीकरणीय ऊर्जा अवसंरचना में उन्नत तकनीक और यूरोप के लिए ऊर्जा प्रवेश द्वार के रूप में उसकी रणनीतिक भूमिका के साथ पूरी तरह मेल खाती है। इस संदर्भ में भारत की अगुवाई वाली प्रमुख पहलों- अंतरराष्ट्रीय सौर गठबंधन (आइएसए), शों के गठबंधन (सीडीआरआइ) और ग्लोबल बायोफ्यूल्स एलायंस (जीबीए) में अन्य देशों के साथ हमारा सहयोग भी बेहद महत्वपूर्ण है।

भौतिक, डिजिटल और मानवीय संपर्क ही वह कड़ी है, जो हमें एक-दूसरे से जोड़ती है। भारत और इटली दोनों वेश्विक अर्थव्यवस्था के दो महत्वपूर्ण क्षेत्रों-इंडो- पैसिफिक और भूमध्यसागर के केंद्र में स्थित हैं। अब इन क्षेत्रों कोअलग-अलग नहीं, बल्कि आपस में जुड़े हुए क्षेत्रों के रूप में देखा जा रहा है। हम एक नए 'इंडो-मैडिटेरेनियन" क्षेत्र कोउभरते देख रहे हैं, जो व्यापार, तकनीक, ऊर्जा, डेटा और विचारों का एक महत्वपूर्ण गलियारा बन रहा है और हिंद महासागर को यूरोप से जोड़ता है।

इसी आपस -में जुड़े हुए क्षेत्र में हमारा संबंध स्वाभाविक रूप से एक विशेष रणनीतिक साझेदारी के रूप में विकसित होता है- ऐसी साझेदारी, जो दो महाद्वीपों को जोड़ती है और नई वैश्विक परिस्थितियों को आकार देती है। इस संदर्भ में भारत-मध्य पूर्व-यूरोप आर्थिक गलियारा (आइएमईसी) एक ऐसी दूरदर्शी योजना है, जिसका उद्देश्य आधुनिक परिवहन और बुनियादी ढांचे, डिजिटल नेटवर्क, ऊर्जा प्रणालियों और मजबूत सप्लाई चेन के माध्यम से हमारे क्षेत्रों को जोड़ना है। साथ मिलकर इस दृष्टि को वास्तविकता में बदलने के लिए भी प्रतिबद्ध हैं।

हम अपनी साझा चुनौतियों का समाधान दोनों देशों के गहरे संबंधों और लंबे सांस्कृतिक जुड़ाव के आधार पर कर सकते हैं। भारतीय संस्कृति में "धर्म" का विचार उस जिम्मेदारी की भावना को दर्शाता है, जिसे हमारे कार्यों का मार्गदर्शन करना चाहिए। वहीं "वसुधैव कुटुंबकम्" अर्थात "पूरी दुनिया एक परिवार है" का सिद्धांत आज के आपस में जुड़े डिजिटल युग में और भी अधिक प्रासंगिक लगता है। ये मूल्य इटली की मानवतावादी परंपरा से भी मेल खाते हैं, जिसकी जड़ें पुनागरण काल में हैं। यह परंपरा हर व्यक्ति की गरिमा और संस्कृति की उस शक्ति पर जोर देती है, जो समाजों और लोगों को एकजुट कर सकती है। इसलिए हमारी साझा दृष्टि का उद्देश्य लोगों को केंद्र में रखते हुए भारत-इटली साझेदारी को मजबूत, आधुनिक और भविष्य उन्मुख आधार प्रदान करना है।

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Italy & India: A Strategic Partnership For The Indo-Mediterranean

Source: The Times of India, Dt. 20 May 2026

The relationship between India and Italy has now reached a decisive stage. In recent years, our ties have expanded with unprecedented momentum, evolving from a cordial friendship into a special strategic partnership grounded in the values of freedom and democracy, and a common vision for the future. At a time when the international system is undergoing a profound change, the partnership between Italy and India is guided by regular exchanges at higher political and institutional levels, and is gaining a new and higher dimension that combines our economic dynamism, societal creativity, and millennia-old civilisational wisdom.

Our cooperation mirrors our shared awareness that prosperity and security in the 21st century will be shaped by the ability of nations to innovate, manage energy transitions, and strengthen strategic sovereignty. To this end, we have committed to deepen and diversify our bilateral relationship with a view to pursuing new objectives and pooling our complementary strengths.

We aim to forge a powerful synergy between Italian design, manufacturing excellence, and world-class supercomputers - reflecting Italy's position as an industrial powerhouse - and India's rapid economic growth, engineering talent, scale, and innovation and entrepreneurial ecosystem with over 100 unicorns and 200,000 start-ups.

This is not a simple integration, but a co-creation of value where our respective industrial strengths amplify one another. The Free Trade Agreement between the European Union and India paves the way for increased trade and investment in both directions. We want to reach and exceed the Euro 20 billion target for trade between Italy and India by 2029, with a focus on defence and aerospace, clean technologies, machinery, automotive components, chemicals, pharmaceuticals, textiles, agri-food, tourism and more.

"Made in Italy" has always been synonymous with excellence worldwide, and today it finds a natural synergy with the high-quality goals of the "Make in India" initiative. In this context, the growing interest of Italian businesses in the production for India and the increasing presence of Indian industries in Italy, numbering over 1,000 from both sides now, is a positive sign that will strengthen the integration of our supply chains. Technological innovation lies at the very heart of our partnership.

The coming decades will be shaped by a technological revolution of unmeasurable scope, marked by advances in sectors such as Artificial Intelligence, quantum computing, advanced manufacturing, critical minerals, and digital infrastructure. India's dynamic innovation ecosystem, coupled with highly skilled professional talent pool, and Italy's advanced industrial capabilities make our cooperation in the above sectors both natural and strategic. The growing partnership between our universities and research centres will support this. India's Digital Public Infrastructure is already finding resonance with a large number of countries particularly in the Global South.

Artificial Intelligence, in particular, is already impacting our societies and the global economy. Italy and India have long been collaborating to ensure that AI development is responsible and human-centred. From this perspective, India and Italy also see AI as a powerful instrument for inclusive development, especially for the Global South, where digital public infrastructure and accessible, multilingual technologies can bridge divides rather than deepen them. Building on India's vision of MANAV - putting human at the centre of technology - and Ita-ly's leadership in promoting a human-

centric 'algor-ethics' rooted in its humanist tradition, our partnership seeks to ensure that AI acts as a catalyst for social empowerment. Our approach combines India's digital scale with Italy's ethical and industrial expertise, ensuring technology serves human dignity.

By sharing best practices in secure digital cooperation, capacity-building and resilient cyber infrastructure, we aim to create an open, trustworthy and equitable digital space in which every nation can shape and benefit from AI. This perspective forms the core of Italy's G7 Presidency and outcomes of the AI Impact Summit 2026, held in New Delhi. Conceiving AI as a tool created by humans for humans means firmly asserting that technology cannot replace individuals or undermine their fundamental rights, nor be used to manipulate public debate or alter democratic processes. Our approach to defending freedom and human dignity in an increasingly interconnected world hinges on this very challenge.

Our cooperation also covers the space sector. India's impressive advancements in space exploration and satellite technology, together with Italy's aerospace engineering excellence, offer significant opportunities for joint initiatives and next-generation technology development. Security and stability remain essential to ensuring nations' prosperity. Italy and India intend to further strengthen their cooperation in sectors such as defence, security and strategic technologies.

Our collaboration will help ensure the security of critical maritime routes, strengthen resilience in the face of threats, such as terrorism, international criminal networks, drug trafficking, cyber-crimes and human trafficking. Energy is another key pillar of our partnership. The global transition towards diversified energy sources requires innovation, investment, and cooperation. India and Italy are collaborating from renewable energy to hydrogen technologies, and from smart grids to resilient infrastructure. While India's push for becoming a hub for green hydrogen exports offers immense potential, it perfectly complements Italy's advanced technology in renewable infrastructure and its strategic role as an energy gateway for Europe.

Our collaboration along with other countries in key India-led initiatives - International Solar Alliance (ISA), Coalition for Disaster Resilient Infrastructure (CDRI) and Global Biofuels Alliance (GBA) - is also important in this context. Physical, digital and human connectivity is the thread that weaves us together.

Both India and Italy are located at the very heart of two crucial hubs of the global economy, the Indo-Pacific and the Mediterranean - regions that cannot be viewed as separate spheres, but instead as increasingly interconnected spaces. As a matter of fact, we are witnessing the emergence of what might be termed the Indo-Mediterranean, an important corridor for trade, technology, energy, data and ideas tying the Indian Ocean to Europe.

It is precisely within this interconnected space that our bond naturally evolves into a special strategic partnership - one that bridges two continents and shapes new global dynamics. In this context, the India-Middle East-Europe Economic Corridor represents a vision aimed at connecting our regions through modern transport and infrastructure, digital networks, energy systems, and resilient supply chains.

India and Italy are also committed to working together with other partners to make this vision a reality. We can address our shared challenges by drawing upon the profound partnership and the enduring cultural ties between our nations.

Within Indian culture, the concept of "Dharma" evokes the sense of responsibility that must guide our actions, whilst the principle of "Vasudhaiva Kutumbakam" - the world is one family - resonates powerfully in this interconnected digital age. Such values find a natural echo in Italy's humanist

tradition, rooted in the Renaissance, which highlights the dignity of each individual and the power of culture to unite peoples and societies. Our shared vision, therefore, aims to lay the foundation for a strong and forward-looking India-Italy partnership with our people at the centre.

https://timesofindia.indiatimes.com/india/italy-india-a-strategic-partnership-for-the-indo-mediterranean/articleshow/131213270.cms

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Science & Technology News

Space bonding with Europe: Sweden joins India's Venus mission, Norway ties up with ISRO for space cooperation

Source: The Times of India, Dt. 20 May 2026

Space collaboration got a big boost during PM Modi's visit to Europe. Sweden has formally joined India's orbiter mission to the Venus planet by signing an agreement to collaborate on the interplanetary mission. And the Norwegian Space Agency has signed an MoU with Isro to give a new dimension to space cooperation between the two countries.

As part of the Venus (popular as 'Shukrayaan') mission, Sweden's Swedish Institute of Space Physics will develop a scientific instrument called the Venusian Neutrals Analyser (VNA), which will fly aboard India's Venus orbiter.

VNA will study how charged particles from the Sun interact with the atmosphere and exosphere of Venus. India's Venus spacecraft will embark on a 112-day journey and is expected to reach the planet by July 2028.Talking about the Venus mission in presence of PM Modi on May 17, Swedish PM Ulf Kristersson said, "Sweden is proud to be on our way to Venus with India.""Isro and Sweden's National Space Agency have joined forces since the 1980s," Kristersson said while using this historical context to highlight how the new Venus mission partnership builds upon decades of trust.

The Venus orbiter mission, approved by the Modi cabinet in 2024 with an outlay of Rs 1,236 crore, involves launching the spacecraft aboard an LVM-3 rocket into an initial elliptical orbit before eventually settling into a Venusian orbit with a periapsis of 500 km and an apoapsis of 60,000 km. The mission will carry 19 payloads in all, spanning Indian and international instruments, and its Preliminary Design Review was completed in April 2026.

Through this mission, Isro aims to study Venus' dense atmosphere, volcanic surface, weather systems and mysterious super-rotating clouds. Scientists also hope to investigate whether Venus once possessed conditions suitable for liquid water before evolving into an extreme greenhouse world.

On the MoU between Isro and the Norwegian Space Agency, PM Modi said in Norway on Monday, "We are grateful to Norway for supporting the operations of India's Arctic research station Himadri. The MoU signed between Isro and the Norwegian Space Agency will give a new dimension to our space cooperation. Through deeper collaboration in these fields, our scientists will contribute

towards understanding climate change, protecting fragile ecosystems and securing humanity's future. India and Norway's Green Strategic Partnership will benefit the entire world."

https://timesofindia.indiatimes.com/india/space-bonding-with-europe-sweden-joins-indias-venus-mission-norwayties-up-with-isro-for-space-cooperation/articleshow/131210995.cms

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Moon's upper surface has two distinct layers within centimetres, reveals Chandrayaan-3 'hop' experiment

Source: The Indian Express, Dt. 20 May 2026

THE FAMOUS 'hop' experiment performed by the Chandrayaan-3 lander on the Moon was not just about demonstrating Indian space agency ISRO's ability to launch from the lunar surface. Scientists have now revealed new details about the upper surface of the Moon at the landing site using data collected during that 'hop' manoeuvre performed towards the end of planned active mission life of Chandrayaan-3.

In new findings published in the Astrophysical Journal, scientists from the Physical Research Laboratory (PRL) in Ahmedabad have reported that the Moon's upper surface, the regolith as it is called, is not uniform, and its physical and thermal properties show sharp changes at just a few centimetres of depth. The loose porous layer at the top very quickly gives way to a denser compact layer just 2 to 6 cm below.

More importantly, the paper, which is based on analysis of data produced by the ChaSTE (Chandra's Surface Thermophysical Experiment), suggests that the 'hop' experiment disturbed the upper loose layer enough to expose the subsequent layers to the instruments onboard the lander.

On September 4, 2023, just before it went into hibernation to survive the lunar night, the Chandrayaan-3 lander, which had made a historic soft-landing 10 days earlier, was made to perform a small jump. The lander fired its engines, lifted itself up about 40 cm from the surface, and landed again 30-40 cm away.

The 'hop' experiment was never publicised in the Chandrayaan-3 plans and had come as a surprise. It was seen as a demonstration of the capability of ISRO to get the lander to fire its engines and produce enough thrust to lift itself up from the surface. This capability is key for future missions in which the spacecraft would be required to make the return journey to the Earth.

The new findings have put a more precise measurement for the distance travelled by lander during the 'hop' experiment — about 50 cm, instead of the earlier estimate of 30-40 cm. The paper says that the rocket plume generated during the 'hop' was enough to blow away about 3 cm of the top layer of the surface, and allow the ChaSTE to have a look at the newly exposed layer beneath. A rod-shaped probe with a sharp tip and fitted with temperature sensors, ChaSTE was able to do a thermal profile of the new site post 'hop'. It was deployed for 57 minutes during lunar twilight, which lasts for a few hours unlike the Earth twilight that lasts for a few minutes before sunset. The analysis revealed that even at depths of 6 to 9 cm, the lunar surface was composed of two distinct layers.

Data from instruments onboard Chandrayaan-3 mission are continuing to generate very useful information about the Moon. ChaSTE, one of the four instruments on the lander, has itself produced at least three major papers in important international publications until now.

The paper represents a first-of-its-kind thermal profile, density and layering structure of the Moon's surface at the lunar twilight time, just ahead of sunset on this part of the Moon. The information could be useful at the time of planning future moon walks or for building lunar bases, PRL scientists said.

Specifically, the amount of displacement caused by rocket plumes at the time of the 'hop' experiment is very useful information for space agencies planning return missions. It helps them to understand what to expect when a rocket engine is fired so close to the surface.

Data from ChaSTE has resulted in other findings as well, which have been published earlier. Last year, the same group of scientists had reported that water-ice on the Moon could be more prevalent than understood earlier. Using ChaSTE data, they had reported that there was a good probability that water-ice was present in locations outside of the polar regions of the Moon.

In another publication, scientists had shown that temperature of the lunar surface dropped drastically with depth. At depths of just 10 cm, the temperature was about 60 degree Celsius less than at the surface. Such extreme heat non-conductivity was considered very useful information from the perspective of creating temperature-controlled habitats on the Moon.

https://indianexpress.com/article/india/chandrayaan-3-lunar-regolith-study-shiv-shakti-point-cake-like-surface-10697933/

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Indian researchers spot one of the shortest-period stellar binary system

Source: Press Information Bureau, Dt. 19 May 2026

In a breakthrough that could reshape astronomers' understanding of how stars evolve, researchers have made the world's first confirmed discovery of a blue straggler star hosting a brown dwarf companion in an extraordinarily compact binary system.

Scientists have long been puzzled by blue straggler stars, which appear brighter and bluer than the main-sequence turn-off in star clusters, defying standard stellar evolution because all cluster stars are expected to be of similar age.

Scientists from Gauhati University supported under INSPIRE programme of the Department of Science and Technology (DST), Indian Institute of Astrophysics, Koramangala (IIA), Bangalore Aryabhatta Research Institute of Observational Sciences (ARIES), Nainital, both DST institutes and INAF-Catania Astrophysical Observatory, Italy tried to explore the formation of blue stragglers in open clusters and confirmed discovery of a blue straggler star hosting a substellar (brown dwarf) companion in a very compact binary system.

The team consisting of Ali Hasan Sheikh, Prof. Biman J. Medhi from Gauhati University, Dr. Sergio Messina from INAF-Catania, Prof. Annapurni Subramanium and Prof. Ram Sagar from IIA, Bangalore, Dr. Neelam Panwar from ARIES, Nainital found that the system has an exceptionally short orbital period of around 5.6 hours (0.234 days) and contains the lightest companion ever detected around a blue straggler, with a mass of approximately 0.056 times the mass of the Sun, placing it firmly below the hydrogen-burning limit.

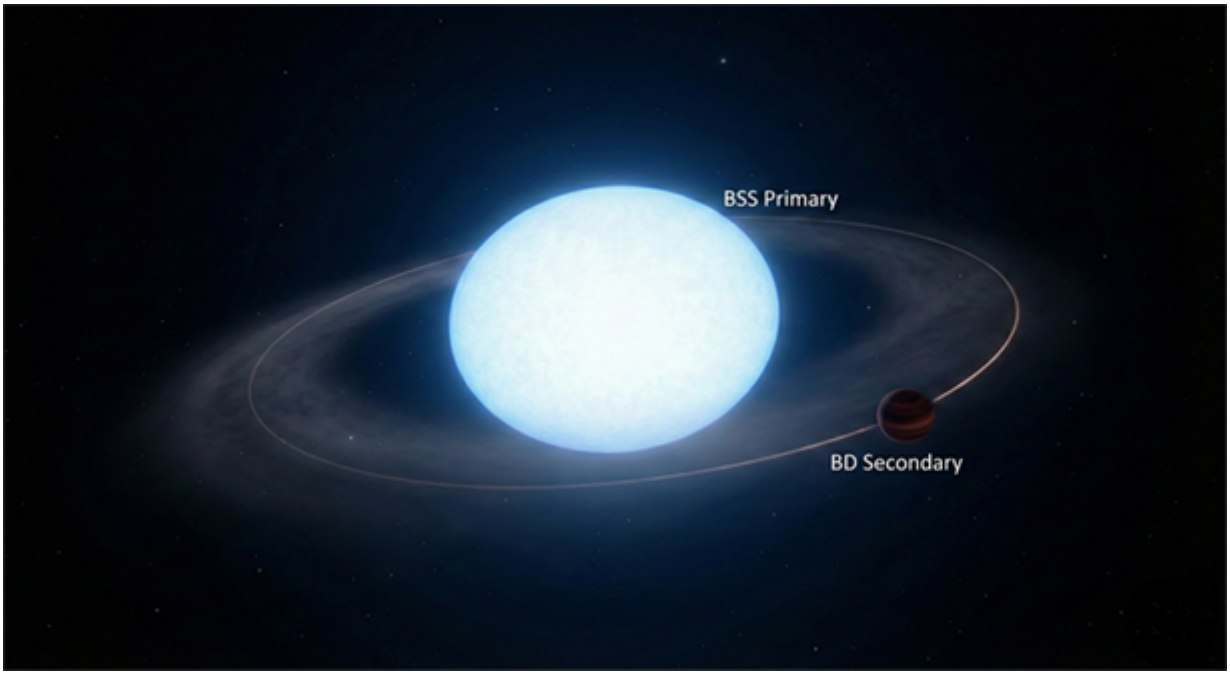

Fig: *Artistic impression of the discovered compact binary system showing a BSS primary orbited by a BD companion in an ultra-short, nearly circular orbit with a period of about 5.6 hours*

The study published in the journal Monthly Notices of the Royal Astronomical Society: Letters reveals the shortest-period binary system discovered inside the so-called “brown dwarf desert”, a region where such companions are thought to be extremely rare.

The rapidly rotating blue straggler star accompanied by a substellar brown dwarf the researchers spotted is an object too massive to be a planet but too small to ignite as a true star.

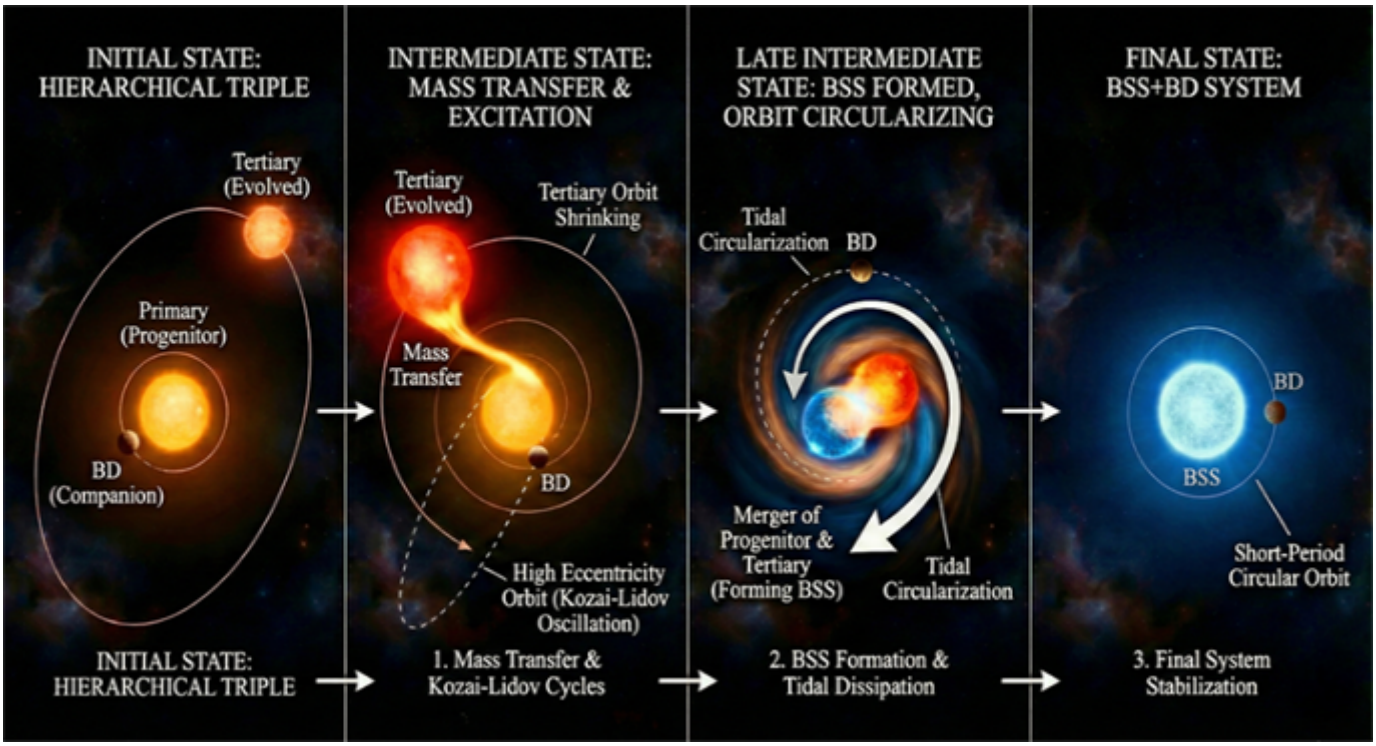

Fig: *Schematic illustration of the proposed formation pathway of the BSS–BD system through hierarchical triple-star evolution. The system begins as a triple, with an inner binary containing a BD companion and an outer evolved tertiary star. Mass transfer and Kozai–Lidov oscillations induce orbital excitation and merger of the progenitor and tertiary, forming the BSS. Subsequent tidal dissipation circularizes the inner orbit, resulting in the present-day compact BSS–BD binary with a short-period circular orbit*

The study advances fundamental scientific knowledge by improving our understanding of how stars evolve, interact, and survive extreme environments, which is essential for building accurate models of stellar and cosmic evolution.

The results help refine theoretical models of stellar evolution, binary interactions, and substellar objects, which are widely used in interpreting data from ground-based observatories and space missions. Additionally, it inspires young researchers by demonstrating how innovative analysis of archival data can lead to major discoveries, encouraging scientific inquiry and exploration without the need for new or expensive observational facilities.

Publication Link: https://doi.org/10.1093/mnras/staf2130

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2262774&reg=3&lang=1

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The Tribune
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The Hindu
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The Asian Age
The Pioneer