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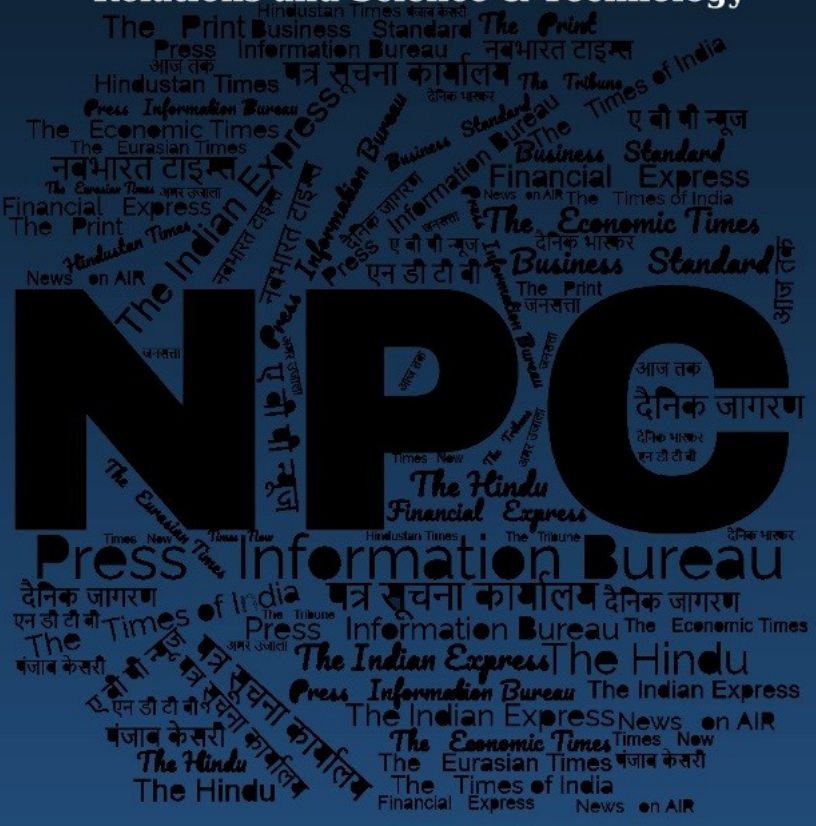
समाचार पत्रों से चयनित अंश

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

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology



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DRDO News

हाइपरसोनिक मिसाइल की फील्ड में भारत को बड़ी सफलता, स्क्रैमजेट इंजन की टेस्टिंग पूरी

Source: TV9 Bharatvarsh, Dt. 26 April 2025,
URL: https://www.tv9hindi.com/india/drdo-achieves-significant-milestone-in-scramjet-engine-development-3254887.html

पहलगाम हमले के बाद पाकिस्तान के साथ चल रहे तनाव के बीच रक्षा अनुसंधान एवं विकास संगठन (DRDO) की हैदराबाद स्थित प्रयोगशाला, रक्षा अनुसंधान एवं विकास प्रयोगशाला (DRDL) ने बड़ी सफलता हासिल की है. इसमें स्क्रैमजेट इंजन की 1000 सेकेंड तक सफल टेस्टिंग हुई है. ये इंजन हाइपरसोनिक मिसाइल में इस्तेमाल होगा.

यह हाइपरसोनिक हथियार टेक्नोलॉजी के क्षेत्र में एक महत्वपूर्ण उपलब्धि है. बता दें कि ग्राउंड टेस्ट जनवरी 2025 में 120 सेकेंड के लिए किए गए पहले टेस्ट की निरंतरता है. सफल टेस्ट के साथ, सिस्टम जल्द ही पूर्ण पैमाने पर उड़ान योग्य कॉम्बस्टर परीक्षण के लिए तैयार हो जाएगा.

क्या है हाइपरसोनिक क्रूज मिसाइल?

हाइपरसोनिक क्रूज मिसाइल एक प्रकार का हथियार है जो ध्वनि की गति से पांच गुना अधिक (> 6100 किलोमीटर प्रति घंटा) लंबी अवधि तक यात्रा कर सकता है और यह एयर ब्रीदिंग इंजन द्वारा संचालित होता है. सुपरसोनिक दहन वाले एयर ब्रीदिंग प्रोपल्शन सिस्टम लंबी अवधि की क्रूज स्थितियों के लिए महत्वपूर्ण भूमिका निभाते हैं.

स्क्रैमजेट कॉम्बस्टर का डिजाइन

यह टेस्ट लंबी अवधि के स्क्रैमजेट कॉम्बस्टर के डिजाइन के साथ–साथ टेस्ट सुविधा को भी मान्य करता है. यह उद्योग और शिक्षाविदों के साथ–साथ DRDO प्रयोगशालाओं द्वारा किए गए एकीकृत प्रयास का परिणाम है और देश के हाइपरसोनिक क्रूज मिसाइल विकास कार्यक्रम के लिए एक मजबूत आधार तैयार करता है.

रक्षा मंत्री राजनाथ सिंह ने दी बधाई

रक्षा मंत्री राजनाथ सिंह ने इस उपलब्धि के लिए DRDO, उद्योग भागीदारों और शिक्षाविदों को बधाई दी है. उन्होंने इस सफलता को देश के लिए महत्वपूर्ण हाइपरसोनिक हथियार टेक्नोलॉजीज को साकार करने में सरकार की मजबूत प्रतिबद्धता का प्रतिबिंब बताया.

सुपरसोनिक कॉम्बस्टर का प्रदर्शन

रक्षा अनुसंधान एवं विकास विभाग के सचिव और डीआरडीओ के अध्यक्ष डॉ. समीर वी. कामत ने महानिदेशक (मिसाइल एवं सामरिक प्रणाली) यू राजा बाबू, डीआरडीएल के निदेशक डॉ. जीए श्रीनिवास मूर्ति और पूरी टीम को

मॉर्डन टेक्नोलॉजी का उपयोग करते हुए 1,000 सेकंड से अधिक समय तक सुपरसोनिक कॉम्बस्टर का प्रदर्शन करने के लिए बधाई दी.

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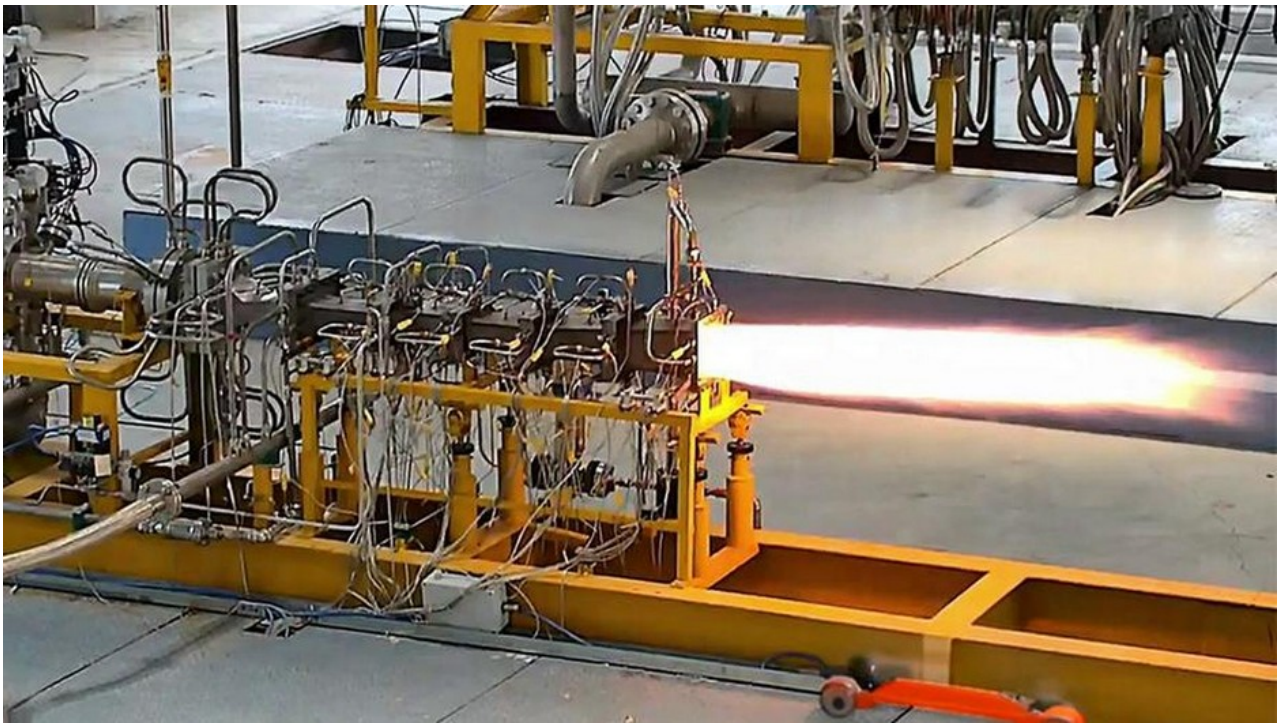
DRDO makes headway in hypersonic technology

Source: The Hindu, Dt. 26 April 2025,
URL: https://www.thehindu.com/sci-tech/science/drdo-achieves-major-breakthrough-in-hypersonic-weapon-technology/article69492050.ece



DRDO demonstrated long-duration Active Cooled Scramjet Subscale Combustor ground testing for more than 1,000 seconds

The Defence Research and Development Organisation (DRDO) on Friday (April 25, 2025) announced a significant milestone in the field of hypersonic weapon technology with the demonstration of long-duration Active Cooled Scramjet Subscale Combustor ground testing for more than 1,000 seconds.

“The ground-test is in continuation of the earlier test reported for 120 seconds in January 2025. With the successful test, the system will be soon ready for full scale flight worthy combustor testing,” DRDO said in a statement. “This test validates the design of long duration scramjet combustor as well as test facility.”

DRDO tests directed energy weapon system that can disable drones, missilesThe development was achieved by the Defence Research & Development Laboratory (DRDL), a Hyderabad-based laboratory of DRDO, at the newly built state-of-the-art scramjet connect test facility.

Hypersonic cruise missile is a class of weapons that can travel more than five times the speed of sound (>6100 Kmph) for a long duration and is powered by air breathing engine. Air-breathing propulsion systems, having supersonic combustion, play a critical role for long-duration cruise conditions, the statement said.

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Defence News

Defence Strategic: National/International

Keel Laying Of Fourth Next Generation Offshore Patrol Vessel Yard (3040)

Source: Press Information Bureau, Dt. 25 April 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2124194

Keel laying ceremony for Yard 3040, the fourth (ex-GRSE) Next Generation Offshore Patrol Vessel (NGOPV), was held at Garden Reach Shipbuilders & Engineers Ltd (GRSE) in Kolkata, on 24 Apr 25.

The ceremony was attended by Vice Admiral Rajaram Swaminathan, Controller of Warship Production & Acquisition, as the Chief Guest. Cmde PR Hari (Retd), Chairman and Managing Director of GRSE, along with other senior officials from the Indian Navy and the shipyard, were also present.

This milestone marks a significant step forward in the construction of the NGOPV, further showcasing India's indigenous shipbuilding capabilities.

The contracts for indigenous design and construction of eleven Next Generation Offshore Patrol Vessels (NGOPV) were concluded on 30 Mar 23 with Goa Shipyard Ltd (GSL), Goa and Garden Reach Shipbuilders and Engineers (GRSE), Kolkata, with seven ships to be constructed by Lead Shipyard GSL and four ships by Follow Shipyard GRSE.

The NGOPVs, with an approximate tonnage of 3000T, are designed for Coastal Defence & Surveillance, Search & Rescue operations, Protection of Offshore Assets and Anti-Piracy missions. Keel Laying of the vessel marks a significant milestone in the overall project timeline. The eleven NGOPVs are being built in consonance with the nation's vision of ‘Aatmanirbhar Bharat ' and ' Make in India' and are poised to augment the Indian Naval maritime prowess.

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IOS SAGAR IN Port Louis, Mauritius

Source: Press Information Bureau, Dt. 27 April 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2124711

IOS SAGAR arrived at Port Louis Harbour, Mauritius on 26 Apr 25 on completion of Phase I of Joint EEZ surveillance with National Coast Guard (NCG) Mauritius as part of deployment to the South Western Indian Ocean. The visit marks a significant milestone in India's commitment to regional maritime cooperation and capacity-building with friendly foreign countries.

Indian Naval Ship Sunayna (IOS SAGAR), which sailed from Karwar on 05 Apr 25, has 44 naval personnel from nine friendly foreign nations of the Indian Ocean Region (IOR), including two officers and six sailors from the Republic of Mauritius.

This initiative underlines the Indian Navy's continued efforts to enhance interoperability, mutual learning, and regional maritime security in a spirit of collective growth and cooperation.

The ship and her crew were received with warmth and enthusiasm, reflecting the close and time-tested bonds between India and Mauritius. The welcome reception was graced by Mr. Sooroojebally R, PMSM, the Commissioner of Police, and several high-ranking dignitaries of the Prime Minister's Office, Mauritius Police Force, Indian High Commission, and NCG Mauritius. On completion of the welcome ceremony, the dignitaries were given a tour of the ship, which was followed by interaction with personnel embarked from friendly foreign nations.

During the port call, the Commanding Officer, IOS SAGAR, will call on the Commandant, National Coast Guard, the Commissioner of Police and the High Commissioner of India. Various activities are planned during the two-day port call, including the visit by the IOS SAGAR crew to

the Maritime Air Squadron, Special Mobile Force Squadron and the Police Helicopter Squadron. The Commissioner of Police will also interact with the multinational crew of IOS SAGAR at Police Headquarters. The ship will be open to visitors on 27 Apr 25. Activities like trekking, Joint Yoga session and friendly sports fixtures have also been planned during the ship's stay at Port Louis.

On departure, the ship will undertake phase II of Joint EEZ surveillance with the NCG Mauritius and, upon completion, proceed to Port Victoria, Seychelles.

INS Sunayna, a state-of-the-art Saryu class NOPV, is designed for anti-piracy operations, maritime surveillance, and HADR. The ship is equipped with medium and close-range gunnery weapons and modern electronic warfare suites, including missile defence measures. She can also carry a helicopter, which enhances her operational and surveillance capability.

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Rajnath Singh, CDS Anil Chauhan meet for key briefing on military efforts after Pahalgam terror attack

Source: Hindustan Times, Dt. 27 April 2025,
URL: https://www.hindustantimes.com/india-news/rajnath-singh-army-chief-meet-for-key-briefing-on-military-efforts-after-pahalgam-terror-attack-101745753138528.html

On April 22, terrorists attacked the Baisaran meadow near the Pahalgam town of Anantnag district, and gunned down 26 civilians, mostly tourists. Follow LIVE updates on the Pahalgam terror attacks here

The incident was one of the deadliest attacks in the region since the 2019 Pulwama strike, which claimed the lives of 40 CRPF jawans.

Since the attack, the Jammu and Kashmir police, CRPF, Army and other security personnel have amped up search and cordon operations in order to root out people involved in terrorist activities.

The National Investigation Agency (NIA) has also launched a probe, and are currently questioning eyewitnesses.

Cabinet Committee on Security meeting

On April 23, PM Modi chaired a meeting of the Cabinet Committee on Security (CCS) to discuss India's response to the Pahalgam terror attack.

During the meeting it was decided that India would withdraw its defence, navy and air advisors from the Indian high commission in Islamabad after a Pakistani militant group claimed responsibility for the attack.

The overall strength of the high commissions in Pakistan was also brought down to 30 from 55, effective from May 1, 2025.

India also decided that they would suspend the Indus Waters Treaty, a decades-long agreement on water and intelligence sharing with Pakistan.

The suspension of the treaty has caused the tense relations between the two countries to worsen, with Pakistani authorities closing airspaces for Indian-owned airlines, among other tit-for-tat punitive measures.

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India, France to sign Rs 63k cr deal for 26 Rafale Marine combat aircraft on Monday

Source: ANI News, Dt. 27 April 2025,
URL: https://www.aninews.in/news/world/asia/india-france-to-sign-rs-63k-cr-deal-for-26-rafale-marine-combat-aircraft-on-monday20250427220827/

India and France are set to sign a Rs 63,000 crore deal for 26 Rafale Marine combat aircraft on Monday in Delhi, defence officials said.

Officials from the Indian Defence Ministry and the French Ambassador to India will represent the two sides at the signing event. Defence Secretary Rajesh Kumar Singh is likely to represent the Indian side, while the French and Indian defence ministers are expected to attend remotely, sources said.

Earlier, the French Defence Minister was scheduled to attend the signing in person but had to cancel his visit due to personal reasons.

The Cabinet Committee on Security had cleared the deal earlier this month.

The 26 Rafale Marine fighter jets are urgently required for deployment on Indian aircraft carriers, particularly INS Vikrant, which is now in service. The existing fleet of MiG-29K fighters has reportedly underperformed due to maintenance-related issues.

The Rafale M jets will be customised to meet Indian requirements and will be integrated into INS Vikrant. These carrier-borne fighters are being acquired as a stopgap solution until the development of an indigenous carrier-borne fighter jet is completed.

Sources said the signing event is likely to be held outside the Defence Ministry headquarters at South Block.

The French Minister is expected to arrive in India on Sunday evening and depart on Monday late evening, the sources added.

India had cleared its largest-ever defence deal for 26 Rafale Marine combat aircraft earlier this month on April 9 during a meeting of the Cabinet Committee on Security, chaired by Prime Minister Narendra Modi.

The government-to-government contract includes 22 single-seater and four twin-seater jets, along with a comprehensive package for fleet maintenance, logistical support, personnel training, and indigenous component manufacturing.

The Rafale M jets will operate from INS Vikrant and support the existing MiG-29K fleet.

The Indian Air Force already operates a fleet of 36 Rafale aircraft acquired under a separate deal signed in 2016. These aircraft are based at Ambala and Hasimara.

The new deal will raise the total number of Rafale jets in India to 62, significantly boosting the country's fleet of 4.5-generation fighter aircraft.

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India, Saudi Arabia hold Inaugural Army-to-Army Staff Talks, with focus on defence cooperation

Source: ANI News, Dt. 25 April 2025,
URL: https://www.aninews.in/news/world/asia/india-saudi-arabia-hold-inaugural-army-to-army-staff-talks-with-focus-on-defence-cooperation20250425110124/

The Inaugural Army-to-Army Staff Talks between the Indian Army and the Royal Saudi Land Forces (RSLF) took place in New Delhi from April 23-24, with the discussions centered around strengthening defence ties through the Annual Defence Cooperation Plan, which included plans for Joint Exercise Sada Tanseeq, military training and education, domain expert exchanges, and collaborative efforts in operational logistics.

In a post on X, Integrated Headquarters of the Ministry of Defence wrote, "Inaugural Army-to-Army Staff Talks (AAST) between the Indian Army and the Royal Saudi Land Forces (RSLF) were held in New Delhi from 23-24 April 2025. Discussions focused on the Annual Defence Cooperation Plan, covering Joint Exercise Sada Tanseeq, training, military education, domain expert exchanges and engagements in areas of mutual interest."

The post added, "Both sides also explored avenues of collaboration in operational logistics, battlefield management systems and niche technologies to enhance interoperability and capability development." Earlier, following the State Visit of Prime Minister Narendra Modi to Saudi Arabia, both sides appreciated the deepening of the defence ties as a key pillar of the Strategic Partnership, and welcomed the creation of a Ministerial Committee on Defence Cooperation under the Strategic Partnership Council.

The Ministry of External Affairs (MEA) in a joint statement said, "They noted with satisfaction the growth of their joint defence cooperation, including numerous 'firsts' like the first ever Land Forces exercise SADA TANSEEQ, two rounds of the Naval Exercises AL MOHED AL HINDI, many high-level visits, and training exchanges, towards ensuring the security and stability of the region. They welcomed the outcomes of the 6th meeting of the Joint Committee on Defence Cooperation held in Riyadh in September 2024, noting the initiation of staff-level talks between all three services. Both sides also agreed to enhance defence industry collaboration."

Both sides welcomed the growth of the economic relationship, as well as the strengthening of trade and investment ties between India and Saudi Arabia in recent years.

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भारत के ये आर्मी टैंक होगा और भी दमदार, दुश्मनों के ड्रोन को देखते ही कर देगा नेस्तनाबूद!

Source: Zee Bharat, Dt. 27 April 2025,
URL: https://zeenews.india.com/hindi/zee-hindustan/national/indian-army-will-upgrade-its-tanks-with-cuas-system-will-destroy-enemy-drones/2732795

दुनिया भर में युद्ध के तौर–तरीके बदल चुके हैं. इस बदलाव में सबसे अहम भूमिका ड्रोन ने निभाया है. जो न केवल सस्ते बल्की प्रभावी भी हैं. ऐसे में भारत भी अपनी सैन्य क्षमता को लगातार मजबूत कर रहा है. बता दें, भारतीय सेना ने अपने बीएमपी–2/2के इन्फैंट्री कॉम्बैट व्हीकल्स (ICVs) को और घातक बनाने के लिए काउंटर–यूएएस (C–UAS) सिस्टम खरीदने का फैसला लिया है. इसके लिए सेना ने 100 यूनिट्स प्रति वर्ष सप्लाई के साथ एक रिक्वेस्ट फॉर इंफॉर्मेशन (RFI) जारी की है. इस सिस्टम का मकसद दुश्मन के सर्विलांस ड्रोन, लूटिंग म्यूनिशन और FPV ड्रोन जैसे खतरों को रियल–टाइम में पहचान कर नष्ट करना है. यह पहल 'मेक इन इंडिया' कार्यक्रम के तहत घरेलू उत्पादन को भी बढ़ावा देगी. इससे पाकिस्तान और चीन की सीमाओं पर ड्रोन खतरों के खिलाफ सेना की सुरक्षा और मजबूत होगी.

C-UAS से लैस होंगे इंडियन टैंक

IDRW की रिपोर्ट के मुताबिक, भारतीय सेना ने अपने पुराने लेकिन महत्वपूर्ण बीएमपी–2/2के इन्फैंट्री कॉम्बैट व्हीकल्स को ड्रोन खतरों से निपटने के लिए अपग्रेड करने की तैयारी कर ली है. इसके लिए एक काउंटर–यूएएस (C–UAS) सिस्टम खरीदने के लिए रिक्वेस्ट फॉर इंफॉर्मेशन (RFI) जारी किया गया है, जिसमें हर साल 100 यूनिट्स की सप्लाई की योजना है.

इस पहल का उद्देश्य बीएमपी–2/2के वाहनों को दुश्मन के सर्विलांस ड्रोन, लूटिंग म्यूनिशन और फर्स्ट–पर्सन व्यू (FPV) ड्रोन जैसे नए खतरों से बचाना है. यह अपग्रेड सेना की मैकेनाइज़्ड इन्फैंट्री क्षमताओं को आधुनिक बनाने में मदद करेगा और मौजूदा प्लेटफॉर्म्स को ज़्यादा प्रासंगिक बनाएगा.

कैसे काम करता है UAS सिस्टम?

काउंटर–यूएएस सिस्टम का काम दुश्मन के ड्रोन को समय रहते पहचानना, ट्रैक करना और उसे खत्म करना है. इसके लिए यह सिस्टम रडार, इलेक्ट्रो–ऑप्टिकल/इन्फ्रारेड (EO/IR) सेंसर और रेडियो फ्रीक्वेंसी (RF) डिटेक्टर जैसी एडवांस्ड तकनीकों का इस्तेमाल करेगा.

सिस्टम दुश्मन के ड्रोन को केवल पहचान ही नहीं करेगा, बल्कि उन्हें नष्ट भी करेगा. इसके लिए काइनेटिक (जैसे गन फायर या मिसाइल) और नॉन–काइनेटिक (जैसे RF जैमिंग या लेजर) विकल्पों का इस्तेमाल किया जाएगा, ताकि ऑपरेशन में न्यूनतम नुकसान हो.

क्या है C-UAS की खासियत?

यह सिस्टम बीएमपी–2/2के के मौजूदा फायर कंट्रोल सिस्टम, गनर के मुख्य दृष्टि यंत्र और कमांडर के पैनोरमिक साइट से पूरी तरह इंटीग्रेट होगा. इसके अलावा, सिस्टम को बीएमपी–2एम जैसे अपग्रेड्स के साथ नाइट फाइटिंग और ऑटोमैटिक टारगेट ट्रैकिंग के अनुकूल भी बनाया जाएगा.

सिस्टम को हल्का, मजबूत और अम्फीबियस ऑपरेशन के अनुकूल डिजाइन किया जाएगा, ताकि यह रेगिस्तान से लेकर पहाड़ी इलाकों तक हर जगह काम कर सके. 'मेक इन इंडिया' के तहत इसमें 50% से अधिक स्वदेशी सामग्री का होना ज़रूरी रहेगा, जिससे घरेलू रक्षा उद्योग को भी बढ़ावा मिलेगा.

LAC और LoC पर बढ़ेगी सुरक्षा

पाकिस्तान और चीन के साथ लगी सीमाओं पर ड्रोन गतिविधियों में भारी बढ़ोतरी हुई है. पाकिस्तान की ओर से चीन निर्मित DJI ड्रोन और स्वदेशी ड्रोन सिस्टमों का उपयोग बढ़ा है, वहीं चीन के पास अत्याधुनिक ड्रोन स्वॉर्म तकनीक भी मौजूद है. 2021 में जम्मू एयरफोर्स स्टेशन पर ड्रोन हमले ने भारतीय रक्षा तंत्र की कमजोरियों को उजागर किया था. ऐसे में, बीएमपी-2/2के वाहनों पर C-UAS लगाने से एलएसी (लाइन ऑफ एक्चुअल कंट्रोल) और एलओसी (लाइन ऑफ कंट्रोल) दोनों पर भारतीय सेना की सुरक्षा क्षमताएं काफी मजबूत होंगी और भविष्य के खतरे से निपटना आसान होगा.

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India grapples with prolonged grounding of Advanced Light Helicopters

Source: Janes, Dt. 25 April 2025,
URL: https://www.janes.com/osint-insights/defence-news/defence/india-grapples-with-prolonged-grounding-of-advanced-light-helicopters

A fatal crash in January, which grounded the Indian military's Hindustan Aeronautics Limited (HAL) Dhruv Advanced Light Helicopter (ALH), has resulted in a prolonged investigation that may see the fleet remain inoperative for another two months, according to an HAL source. The fleet has been grounded since 5 January, when an ALH Mk III of the Indian Coast Guard (ICG) crashed while on a routine training sortie at Porbandar Airport in Gujarat. According to India's Press Information Bureau (PIB), the crash killed all three personnel (two pilots and an aircrew diver) onboard.

In the aftermath of the crash, HAL advised all military, paramilitary, and civilian operators to ground the ALH fleet until the cause of the crash was identified. However, in contrast to previous crashes when the fleet was briefly excluded from operational flying, the fleet has remained grounded.

India's triservices (the army, navy, and air force) operate a total of 238 ALHs, according to Janes inventory data. The twin-engine ALH is used for various roles, including utility, light and maritime attack, and patrol and communications roles. The ICG procured another 16 helicopters from 2021. The ALH is also in limited service with civilian operators and entities in the country. Officially, HAL said the ALH fleet (of all marks) is being subject to a comprehensive investigation. "The military and multiple technical teams are reviewing the aircraft, which is prolonging the investigation," an HAL source told Janes on 22 April. "The technical investigation team within HAL is working to conclude the investigation," the HAL source added.

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India ramps up military drills as tensions rise along LoC and with Pakistan

Source: The Economic Times, Dt. 28 April 2025,
URL: https://economictimes.indiatimes.com/news/defence/india-ramps-up-military-drills-as-tensions-rise-along-loc-and-with-pakistan/articleshow/120674892.cms

India has been flexing its muscles with a range of live firing drills and exercises, even as small arms firing continues along the Line of Control, with Pakistani troops targeting Indian positions for the third straight day. Officials said unprovoked small arms fire is being responded to and no casualties have been reported on the Indian side as of now.

Even as the government is evaluating a military response to target terrorists and their Pakistan-based handlers for the Pahalgam attack, the armed forces have been conducting live firing drills, battlefield drills by mechanised forces in Rajasthan and training missions for special heliborne operations.

Jodhpur-based 12 Corps is conducting 'validation' exercises involving frontline main battle tanks. The drills are aimed at "enhancing the combat efficiency of the formation to conduct sustained operations". During earlier conflicts with Pakistan in 1965 and 1971, major battles were fought in the desert area, with Indian forces making significant inroads into Pakistani territory.

Jaipur-based South Western Command has been conducting drills for special heliborne operations. This includes insertion of special forces deep into enemy territory using Mi17 helicopters and other platforms. In the 1971 war, heliborne operations in Sylhet were key to the liberation of Bangladesh. Similar drills have been carried out by Jalandhar-based Vajra Corps in coordination with the Air Force.

On Sunday, Navy announced carrying out live firings in the Arabian sea to "demonstrate the readiness of platforms, systems, crew for long-range precision offensive strike". As reported earlier, IAF is undertaking an exercise in central India called 'Akraman'.

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Indian Navy conducts successful anti-ship missile firings to demonstrate combat readiness

Source: The Economic Times, Dt. 27 April 2025,
URL: https://economictimes.indiatimes.com/news/defence/indian-navy-conducts-successful-anti-ship-missile-firings-to-demonstrate-combat-readiness/articleshow/120660099.cms

Indian Navy Ships undertook successful multiple anti-ship firings to revalidate and demonstrate the readiness of platforms, systems and crew for long-range precision offensive strike. "Indian Navy stands combat ready, credible and future-ready in safeguarding the nation’s maritime interests, Anytime, Anywhere, Anyhow," said Indian Navy.

Previously, the Indian Navy's warship INS Surat has carried out a successful test firing of Medium range surface-to-air missile (MR-SAM) air defence missile system in the Arabian Sea. The test has taken place before the scheduled surface-to-surface missile testing by the Pakistan Navy in the Arabian Sea. The MR-SAM is highly effective against surface-to-surface missiles and other aerial targets.

"#IndianNavy's latest indigenous guided missile destroyer #INSSurat successfully carried out a precision cooperative engagement of a sea skimming target, marking another milestone in strengthening our defence capabilities," Indian Navy wrote on X.

This achievement demonstrates the Indian Navy's growing prowess in indigenous warship design, development, and operations, and underscores the nation's commitment to self-reliance in defence manufacturing, according to a statement.

INS Surat, the fourth and final ship of the P15B Guided Missile Destroyer Project, ranks among the largest and most sophisticated destroyers in the world. It has an indigenous content of 75% and is equipped with state-of-the-art weapon-sensor packages and advanced network-centric capabilities. Earlier, Indian Naval Ships INS Chennai and INS Kesari sailed from Dar es Salaam after the successful completion of the maiden edition of the AIKEYME exercise. The ships departed on April 19, as announced by the Indian Navy in a statement.

Sharing the details in a post on X, the Indian Navy noted, "Marking the successful completion of the maiden edition of #AIKEYME exercise, the Indian Naval Ships #INSChennai and #INSKesari sailed from Dar es Salaam on #19Apr 25."

It further added, "RAdm AR Hassan, Navy Commander #TPDF & Cmde Agyapal Singh, DA India along with TPDF personnel were present at the port attending the departure ceremony."

Earlier, on Sunday, the Indian Navy shared a post which mentioned about the closing ceremony of the AIKEYME Exercise.

The event was attended by Maj Gen Gaguti, Chief of Personnel of the Tanzania People's Defence Force, who was the Chief Guest for the occasion. Notably, a comprehensive debrief of the exercise was held during the event, followed by cultural programs and addresses by the dignitaries.

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IAF's Akraman underway for precise strikes in enemy zone

Source: The Economic Times, Dt. 25 April 2025,
URL: https://economictimes.indiatimes.com/news/defence/iafs-akraman-underway-for-precise-strikes-in-enemy-zone/articleshow/120595051.cms

The Air Force is currently undertaking a major exercise to hone its skills for precision air strikes deep inside enemy territory, with frontline assets like Rafale fighter jets involved in a complex wargame that factors in heavy electronic warfare as well.

The exercise is taking place even as the situation on the border with Pakistan remains tense in the aftermath of the deadly attack on tourists in Pahalgam.

Sources said Exercise Akraman is being conducted in Central India and is simulating precision air strikes in an environment where the enemy has significant air defences and electronic warfare capability.

Frontlines assets, including Rafale jets, have also been moved from the eastern borders for the exercise that involves a variety of combat aircraft and force multipliers. Sources added it is an internal exercise and was initiated before the Pahalgam terror attack.

Equipped with SCALP air-to-ground missiles that have a range of over 300 km, the Rafale is the most potent platform with India capable of carrying out pinpointed strikes deep inside enemy territory. The same missiles were used by Ukraine to take down high-value Russian targets, including the Rostov-na-Donu submarine and a landing ship in Sevastopol. Theoretically, SCALP-equipped Rafale jets can engage targets like Bahawalpur in Pakistan (headquarters of LeT) with the aircraft flying well within India, say in the safety net of the Jaisalmer air base.

At the same time, India has also deployed S400 air defence system that is capable of taking down incoming enemy aircraft and missiles at a range of almost 400 km.

During 2019 air strikes in Pakistan, when a training camp in Balakot was bombed, India used Mirage 2000 jets for the mission as Rafales were not yet in service. Given the limited range of its weapons, the aircraft had to cross into Pakistani territory.

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US lawmakers call for boosting intelligence ties with Delhi

Source: The Economic Times, Dt. 25 April 2025,
URL: https://economictimes.indiatimes.com/news/defence/us-lawmakers-call-for-boosting-intelligence-ties-with-delhi/articleshow/120628015.cms

US lawmakers Ro Khanna and Rich McCormick, co-chairs of the Congressional Caucus on India, urged the Trump administration to enhance intelligence cooperation with India and support the South Asian nation's counterterror operations.

In an April 24 letter to US secretary of state Marco Rubio over the Pahalgam terror attack, the two Congressmen suggested that Indian and American intelligence agencies must intensify collaboration for dismantling terror networks in the South Asian region. They suggested increasing information-sharing platforms, joint operations, and real-time intelligence support to combat capabilities of terror groups like LeT.

The Congressmen also suggested that Washington should provide targeted support to New Delhi's counterterrorism efforts including logistical capabilities and technical expertise. They noted that advanced technologies must be leveraged to counter terror groups.

Condemning the terror attack, US Attorney General Pamela Bondi said in a post on X, "I am praying for the Indian people following the tragic terrorist attack in Kashmir. America stands with our dear friends in India and against terrorism in all its forms."

New York senator and Senate Democratic leader Chuck Schumer said his heart breaks for the "innocent tourists and locals murdered by terrorists in the revolting attack in Kashmir, and I wish a speedy recovery for the injured."

He added that there can be no tolerance for the hatred that breeds "this kind of unjustifiable violence".

Ranking Member of the House Foreign Affairs Committee Gregory Meeks from New York said he is heartbroken by the news of the heinous terrorist attack targeting innocent tourists and condemns this senseless act of terrorism.

Congressman Mike Lawler of New York strongly also condemned the terrorist attack, saying the US stands with Indi.

The United Nations also strongly condemned the terror attack in Pahalgam.

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A new atomic arms race is stirring and the world is growing more dangerous

Source: The Economic Times, Dt. 28 April 2025,
URL: https://economictimes.indiatimes.com/news/defence/nuclear-weapon-trump-tariff-impact-trade-war-a-new-atomic-arms-race-is-stirring-and-the-world-is-growing-more-dangerous/articleshow/120682529.cms

Long-time US allies, like Japan and South Korea, are calculating the cost — both economic and political — of developing their own arsenals

Eighty years ago this August, the US bombed Hiroshima and Nagasaki, killing tens of thousands of people. Those acts helped to end World War II but also ushered in the nuclear age.

In 2025, a new atomic arms race is stirring, this time not provoked by Russia, China or North Korea — who have been ramping up their arsenals — but instead by President Donald Trump's trade war, and his threats to withdraw the US defense umbrella. The result is a world growing more dangerous, not just for Asia, but for Americans too.

The security architecture that helped prevent conflict from weapons of mass destruction is at risk of unravelling. For decades, Asian nations have relied on Washington's commitment to deterrence. That's no longer guaranteed.

Long-time US allies, like Japan and South Korea, are calculating the cost — both economic and political — of developing their own arsenals. India and Pakistan both have a growing supply of warheads, potentially inflaming an already volatile conflict made worse by recent tensions in Kashmir.

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AI in defence: India must act now, say experts

Source: The Week, Dt. 24 April 2025,
URL: https://www.theweek.in/news/defence/2025/04/24/ai-in-defence-india-must-act-now-say-experts.html

Artificial Intelligence (AI) has permeated every sphere of life. While the debate around its advantages and disadvantages continues, when it comes to the defence of the country, this technology is certainly a double-edged sword. In light of this, the Artificial Intelligence Law Hub, in collaboration with Pavan Duggal Associates, organised a roundtable discussion on 'Artificial Intelligence and Defence', focusing on the strategic integration of AI technologies into India's defence framework.

The main highlight of the discussion was that India cannot afford to remain a spectator in the global AI arms race. The speakers reiterated that AI will play a larger role in future conflicts.

Despite the growing role of AI globally, India still lacks a dedicated legal framework for AI in defence. "The Indian Information Technology Act is completely inadequate," observed Air Marshal Rajeev Sachdeva, adding, "We need to evolve distinctive legal frameworks because AI in defence is a completely different ballgame."

The experts also explored the dilemma of regulation versus operational freedom. Air Marshal Sachdeva noted, "Make any law you feel like but don't bind the military from doing what they need to do. Don't bring books in front of a soldier being stoned on the streets."

The need for indigenous AI infrastructure was another major topic. India lacks its own homegrown AI model and is heavily dependent on China (DeepSeek) and the US (ChatGPT or Gemini). The larger consequence of this is that when these foreign models are used, personal data is compromised. "There is zero silicon fab capability in the country right now. We use the same

hardware as the commercial market," said Air Marshal Sachdeva, adding that while some advancements are expected by the end of the year, India must accelerate self-reliance.

Speakers stressed the importance of developing domestic Large Language Models (LLMs)—a type of AI model specifically designed to process, understand, and generate human language—tailored for defence. SLMs, or Small Language Models—AI models specialised in specific tasks and built with curated, selective data sources—were also highlighted.

The panel also emphasised how laws should be made to ensure that this data is not accessed by India's adversaries and foreign forces.

The roundtable was a powerful reminder that AI isn't just about machines—it is also about sovereignty. "Technology, innovation, and economy together make your militarily strong. When all three align, you become a global power," said one of the speakers.

With global players already advancing AI in warfare, India's defence leadership now faces a critical window to act, legislate, and innovate.

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Post-Pahalgam, Why India's Cold Start Doctrine May Shape Cross-LoC Strategy in Leepa and Neelum Valleys

Source: Republic World, Dt. 27 April 2025,
URL: https://www.republicworld.com/defence/indian-armed-forces/post-pahalgam-why-indias-cold-start-doctrine-may-shape-cross-loc-strategy-in-leepa-and-neelum-valleys

The deadly terrorist attack in Pahalgam on April 22, 2025, has rapidly escalated tensions between India and Pakistan , plunging the subcontinent into yet another period of strategic uncertainty. In its immediate aftermath, India showcased military muscle in Rajasthan through highly visible exercises under Sapta Shakti Command and BSF Rajasthan.

However, a closer examination of the evolving military and political situation suggests that this posturing may be a calculated decoy, designed to mask potential offensive plans directed through the Leepa and Neelum Valleys into Pakistan-Occupied Jammu and Kashmir (POJK).

On April 22, heavily armed terrorists from The Resistance Front (TRF), an offshoot of Lashkar-e-Taiba, attacked civilians in the serene Baisaran Meadow above Pahalgam. Using M4 carbines and AK-47s, the attackers segregated victims based on their religion, brutally killing 26 civilians and injuring over 20 others.

The tragedy, being the deadliest since the 2008 Mumbai attacks, triggered an unprecedented political and military reaction from India. Immediate steps included the suspension of the Indus Waters Treaty and the closure of the Attari-Wagah border, signalling New Delhi's resolve to escalate its retaliation across diplomatic, economic, and potentially military domains.

SHBO Drills in Rajasthan: Signaling Readiness or Strategic Deception?

As tensions simmered, the Indian Army's Sapta Shakti Command rapidly executed a Special Heliborne Operations (SHBO) exercise in Rajasthan on April 24, 2025. Codenamed "Swift. Silent. Surgical.," the drill simulated a precision tactical raid with troops airlifted via Mi-17 helicopters into contested zones under real-time battlefield conditions. The exercise was designed to underscore rapid force projection capabilities, seamless inter-service synergy between the Indian Army and Indian Air Force, and the ability to strike deep behind enemy lines even in harsh desert terrain.

Lieutenant General Manjinder Singh, GOC-in-C of Sapta Shakti Command, further reviewed operational preparedness with an emphasis on communications and battlefield technologies. The highly publicised nature of these drills, including live updates from official Army handles, seems to be aimed at amplifying India's readiness posture. Yet, analysts argue that such overt displays could be masking deeper, covert intentions focused elsewhere, particularly along the volatile Line of Control.

Leepa and Neelum Valleys: Natural Corridors for Cross-LoC Operations

Hidden behind the media coverage of desert manoeuvres is India's historical and ongoing strategic interest in the Leepa and Neelum Valleys. Situated barely 40 kilometres from Muzaffarabad, the capital of POJK, Leepa Valley offers a direct, albeit rugged, access route into enemy-held territory. Likewise, Neelum Valley serves as a corridor adjacent to Kupwara and Bandipora districts in Jammu and Kashmir—regions critical for any cross-LoC insertion or targeted strikes.

Both valleys have historically witnessed terrorist infiltration, artillery duels, and special forces operations. Most notably, India's 2016 surgical strikes following the Uri terror attack reportedly included targets in these valleys. Their strategic location near key terrorist hubs makes them high-value objectives should India seek to undertake limited punitive incursions aligned with its Cold Start Doctrine—emphasising quick, high-impact, and geographically limited operations without crossing nuclear thresholds.

India's Cold Start Doctrine, formulated after the 2001 Parliament attack, is a strategic framework designed to enable swift, decisive responses to provocations like the Pahalgam attack. The doctrine emerged from the lessons of Operation Parakram when slow mobilization allowed Pakistan time to counter India's military buildup.

Cold Start seeks to rectify this by enabling rapid offensives within 48-72 hours, using pre-positioned integrated battle groups (IBGs) that combine infantry, armour, artillery, and air support. These units are engineered for shallow incursions—typically penetrating 50-80 kilometres—to achieve limited objectives, such as destroying terrorist infrastructure, before withdrawing to avoid escalation into a full-scale war or crossing Pakistan's nuclear threshold.

The doctrine's emphasis on speed, precision, and limited scope makes it highly relevant to the current scenario. In response to the Pahalgam attack, India could deploy Cold Start principles to launch punitive operations through the Leepa and Neelum Valleys. The IBGs' rapid mobilization would allow India to strike terrorist camps and retreat before Pakistan could mount a significant counteroffensive.

The integration of air and ground forces would facilitate targeted airstrikes and special forces raids, aligning with the doctrine's goal of delivering a sharp, calibrated blow. By focusing on terrorist targets rather than deep territorial gains, India could signal resolve while minimizing the risk of a broader conflict, making Cold Start a plausible framework for its military strategy.

LoC Activity and Strategic Risks

On April 24, minor firing incidents were reported from Leepa Valley, with Pakistani forces initiating hostilities and Indian forces responding effectively. Though casualties were absent, the exchanges hint at an uptick in tactical friction along the LoC. Simultaneously, Indian Army Chief General Upendra Dwivedi's urgent visit to forward areas in Kashmir on April 25 indicates that Indian military attention remains sharply focused on the northern frontier.

Launching operations through the rugged, forested terrain of Leepa and Neelum Valleys would be consistent with India's approach to limited warfare, yet fraught with risks. Escalatory spirals, international diplomatic backlash, and the unpredictability of Pakistani military reactions—including the potential mobilisation of strategic assets—pose formidable challenges.

However, the New Delhi appears poised to weigh these costs against mounting domestic demands for a forceful response and its broader strategic objective of asserting sovereignty over POJK.

Decoys, Diplomacy, and Domestic Calculations

The post-Pahalgam sequence—diplomatic isolation of Pakistan, economic measures like the suspension of water sharing, and visible military exercises—has generated a layered operational environment. The desert posturing in Rajasthan, involving heliborne strikes and division-level operational readiness displays, serves dual purposes: reassuring domestic audiences and drawing Pakistani focus away from the volatile Kashmir sector.

Should Indian planners opt for limited objectives—such as neutralising specific terror camps or establishing temporary control over key LoC zones—Leepa and Neelum Valleys present the most feasible terrain corridors.

A swift, punitive raid could satisfy political imperatives without dragging India into a prolonged war, especially with elections on the horizon. However, if miscalculated, even tactical actions could spiral into a broader Indo-Pakistani conflict, something India's strategic community remains deeply cautious about.

While India's military theatrics in Rajasthan convey a narrative of conventional deterrence, a deeper, more plausible strategy could involve surgical moves through the Leepa and Neelum Valleys, exploiting historical infiltration routes now repurposed for Indian kinetic operations.

With diplomatic bridges burned and public anger seething, New Delhi might just be preparing the ground for a high-risk, high-reward gambit—one that could reshape the Kashmir narrative for years to come.

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Science & Technology News

Breakthrough research paves way for engineering materials vital for emerging quantum technology

Source: Press Information Bureau, Dt. 25 April 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2124367

A breakthrough method of controlling properties of phonons-- energy wave travelling through crystal lattice on vibration of atoms of the material, through twist angles between layers of two-dimensional materials, can help engineer materials with tailored thermal, optical, and electronic characteristics, vital for quantum technology.

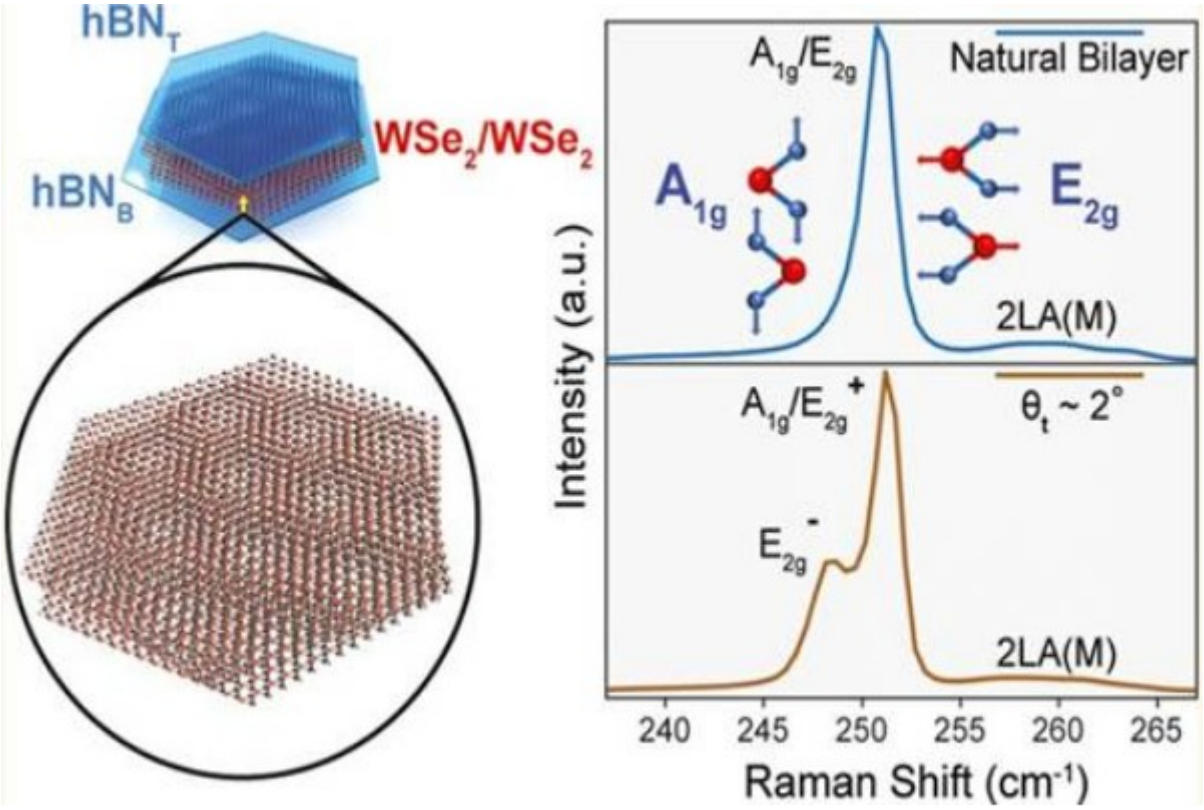

Fig: Left panel – schematic of twisted WSe2. Right panel – Raman spectra from natural an twisted bilayer of WSe2.

A phonon is a collective excitation in a periodic, elastic arrangement of atoms or molecules in condensed matter like a tiny wave of energy that travels through the crystal lattice when atoms in the material start to vibrate. They are similar to movement of ripples in a pond on dropping of a stone.

Phonon properties and their interactions can play a crucial role in developing optoelectronics tunable photonic devices. Scientists are exploring different methods in controlling properties of phonons for the purpose.

Researchers at the Indian Institute of Science (IISc), Bangalore, have uncovered a method to vary twist angles in WSe2 (Tungsten diselenide) homobilayers to influence phonon hybridization and other key properties. This study, published in ACS Nano highlights the intricate relationship between periodic structures that form when two or more two-dimensional (2D) lattices overlap (moiré superstructures) and their impact on phononic and electronic interactions.

Using Raman spectroscopy, the team demonstrated that twist angles between 1° and 7° in WSe2 homobilayers induce splitting in phonon modes. They also showed that unusual temperature-driven changes in Raman frequencies and line widths, particularly at low temperatures (below 50 K), emphasizing the interplay of electron-phonon coupling and phonon anharmonicity (restoring force in the system is not perfectly proportional to the displacement from equilibrium) in twisted systems.

This research which used the Raman facility, set up with support from the FIST (Fund for Improvement of S&T Infrastructure in Universities and Higher Educational Institutions) program of Department of Science and Technology, and received funding support of DST, opens new pathways for the design of advanced materials for photonic, quantum, and electronic applications.

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CSIR-IMMT Signs Joint Declarations of Intent with Russia's Giredmet, Rosatom, Moscow and National University of Science and Technology, Moscow to Advance Critical Mineral Technologies

Source: Press Information Bureau, Dt. 25 April 2025,
URL: https://pib.gov.in/PressReleasePage.aspx?PRID=2124199

The Council of Scientific and Industrial Research (CSIR), through its premier minerals research institute CSIR-IMMT, has signed two Joint Declarations of Intent (JDIs) with leading Russian institutions—the State Research and Design Institute of the Rare Metal Industry (JSC Giredmet), a premier research and design institute under the Russian State Atomic Energy Corporation, Rosatom, Moscow and the National University of Science and Technology MISIS, Moscow (NUST MISIS)—to strengthen cooperation in critical mineral processing and sustainable resource development.

Two separate Joint Declarations of Intent were signed by Dr. Ramanuj Narayan (Director, CSIR-IMMT)—one with Dr. Andrei I. Golinei (Director, Chemical Technology Unit, JSC Rosatom Science) and another with Dr. Michael R. Filonov (Vice-Rector, NUST MISIS).The collaborations are coordinated by Dr. Kali Sanjay, Chief Scientist and Head of Business Development from CSIR-IMMT, and Dr Konstantin V. Ivanovskikh, Deputy Director for Science and Innovation, and Dr. Korotchenko Natalia, Director MISIS Information and Marketing Centre from Giredmet JSC and NUST MISIS, respectively.Shri Anoop Kumar Srivastava, Counsellor (Space) from the Embassy of India, Moscow was also present during the signing, supporting the bilateral collaborations in critical minerals technologies.

The CSIR-IMMT team (Dr. Ramanuj Narayan, Director and Dr. Kali Sanjay, Chief Scientist and Head, Business Development) met with His Excellency Mr. Vinay Kumar, Ambassador of India to the Russian Federation, at the Indian Embassy in Moscow on 24th April, 2025. The meeting was facilitated by Shri Anoop Kumar Srivastava, Counsellor (Space). During the interaction, the team briefed the honourable Ambassador on purpose of the visit to Russia and highlighted the importance of R&D and technological collaboration in process metallurgy, with a focus on critical minerals vital for Atmanirbhar Bharat and Viksit Bharat.

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ISRO's second short hot test of semicryogenic engine a success

Source: The Hindu, Dt. 28 April 2025,
URL: https://www.thehindu.com/sci-tech/science/isro-successfully-conducts-short-duration-hot-test-of-semicryogenic-engine/article69498117.ece

A short duration hot test of the semicryogenic engine was successfully conducted at the test facility in ISRO Propulsion Complex (IPRC), Mahendragiri

The Indian Space Research Organisation (ISRO) has successfully conducted a short duration hot test of the semicryogenic engine at its facility in the ISRO Propulsion Complex (IPRC), Mahendragiri.

This ignition test conducted on April 24, 2025 is the second milestone after the successful first hot test on March 28, 2025, that was a major breakthrough in the testing of the semicryogenic engine test programme.

In this test, the Engine Power Head Test Article, encompassing all engine systems except the thrust chamber, was subjected to a hot test for a duration of 3.5 seconds that validated the engine start-up sequence. During the test, the engine was successfully ignited and operated up to 60% of its rated power level, demonstrating stable and controlled performance.

“These tests are part of a planned series of evaluations designed to validate the design integrity and performance of critical subsystems, including the low-pressure and high-pressure turbo pumps, pre-burner and associated control systems. The results provided crucial data to finalise the operational sequencing of the full semicryogenic engine,” ISRO said.

Further qualification tests are scheduled to comprehensively validate the engine system, ultimately paving the way for its induction into ISRO’s launch vehicles.

NISAR satellite

Meanwhile, the launch campaign activities for NASA-ISRO Synthetic Aperture Radar (NISAR) satellite onboard the GSLV-F16 has already commenced in Sriharikota, ISRO said.

The Second Stage (GS2) of ISRO’s GSLV launch vehicle was flagged off by V. Narayanan, Secretary, Department of Space/ Chairman, ISRO, on March 24, 2025, from the ISRO Propulsion Complex (IPRC), Mahendragiri, to the launch complex at Sriharikota.

“The Directors of ISRO Propulsion Complex (IPRC) and Vikram Sarabhai Space Centre (VSSC) also participated in the flag-off ceremony. This liquid stage is earmarked for the upcoming mission of GSLV (GSLV-F16), that will launch the NASA-ISRO Synthetic Aperture Radar (NISAR) satellite,” ISRO said.

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