जुलाई
July
2025

खंड/Vol. : 50 अंक/Issue : 124

05-07 /07/2025

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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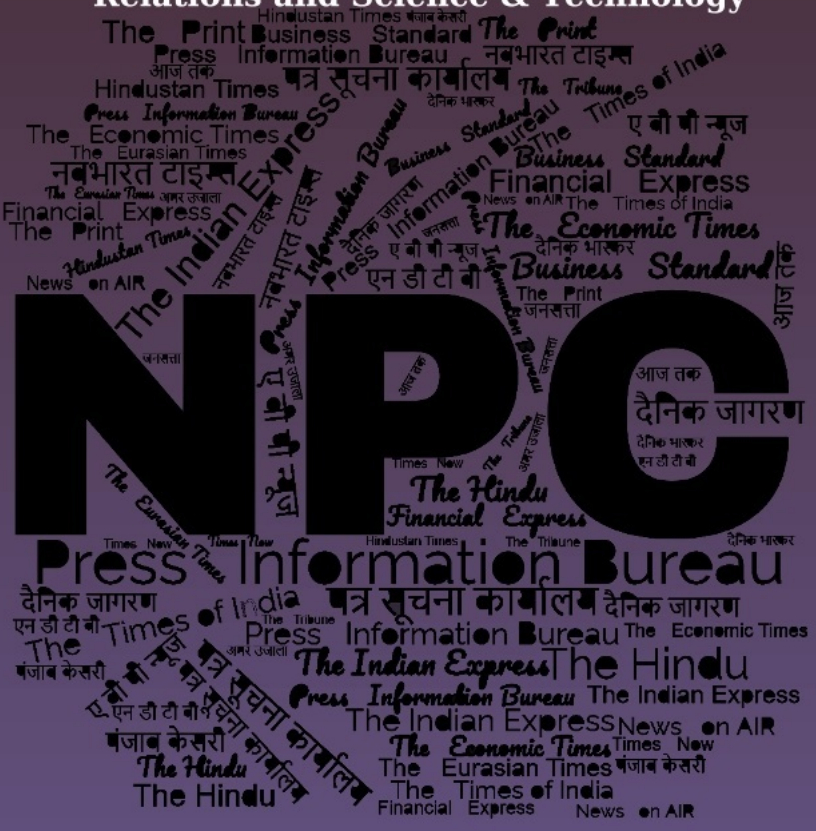

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Defence News

भारतीय सैन्या तेनाती की पाक को सीधी जानकारी दे रहा था चीन

Source: Jansatta, Dt. 05 Jul 2025

चीन ने मई में भारत-पाकिस्तान के बीच हुए चार दिवसीय सशस्त्र संघर्ष को विभिन्न हथियार प्रणालियों के परीक्षण के लिए एक प्रयोगशाला की तरह इस्तेमाल किया और दूसरे के कंधे पर बंदूक रखकर दुश्मन को मारने की प्राचीन सैन्य रणनीति के अनुरूप, इस्लामाबाद को हरसंभव सहायता प्रदान की। उप सेना प्रमुख लेफ्टिनेंट जनरल राहुल आर सिंह ने शुक्रवार को यह बात कही।

लेफ्टिनेंट जनरल सिंह ने कहा कि चीन अपने उपग्रहों का उपयोग भारतीय सैन्य तैनाती की निगरानी के लिए कर रहा था, क्योंकि पाकिस्तानी सेना को डीजीएमओ (सैन्य अभियान महानिदेशक) स्तर की फोन वार्ता के दौरान इसके बारे में सीधी जानकारी मिल रही थी। लेफ्टिनेंट जनरल सिंह ने कहा, जब डीजीएमओ स्तर की वार्ता चल रही थी, तो पाकिस्तान वास्तव में यह उल्लेख कर रहा था कि हम जानते हैं कि आपका अमुक 'वेक्टर' (मिसाइल प्रणाली) सक्रिय है और कार्रवाई के लिए तैयार है, और हम आपसे अनुरोध करेंगे कि आप इसे वापस ले लें। वास्तव में उन्हें चीन से सीधे जानकारी मिल रही थी। यह एक ऐसा क्षेत्र है जहां हमें तेजी से आगे बढ़ने और उचित कार्रवाई करने की आवश्यकता है।

उन्होंने कहा कि सात से 10 मई के बीच हुए संघर्ष के दौरान भारत वास्तव में कम से कम तीन शत्रुओं पाकिस्तान, चीन और तुर्किये से निपट रहा था। तुर्किये से पाक को सैन्य सामान मिल रहा था।।

वरिष्ठ सैन्य अधिकारी ने उद्योग चैंबर फिक्की द्वारा आयोजित नए दौर की सैन्य प्रौद्योगिकी पर एक संगोष्ठी में अपने संबोधन में कहा कि पाकिस्तान जहां सिर्फ सामने नजर आ रहा था, वहीं चीन पर्दे के पीछे से अपने सदाबहार मित्र को हरसंभव सहायता दे रहा था, और तुर्किये भी इस्लामाबाद को सैन्य साजोसामान की आपूर्ति करके प्रमुख भूमिका निभा रहा था। लेफ्टिनेंट जनरल सिंह ने चीन की 36 चालों की प्राचीन सैन्य रणनीति और दूसरे के कंधे पर बंदूक रखकर दुश्मन को मारने की रणनीति का उल्लेख करते हुए इस बात पर जोर दिया कि बेजिंग ने भारत को नुकसान पहुंचाने के लिए पाकिस्तान को हरसंभव समर्थन दिया।

भारतीय सेना के क्षमता विकास और संधारण संबंधी कार्य देखने वाले उप सेना प्रमुख ने कहा कि इस्लामाबाद को बेजिंग का समर्थन आश्चर्यजनक नहीं है, क्योंकि पाकिस्तानी सशस्त्र बलों का 81 फीसद सैन्य साजोसामान चीन से आता है। लेफ्टिनेंट जनरल सिंह ने कहा, वह (चीन) उत्तरी सीमा पर खुद सीधे टकराव में पड़ने के बजाय भारत को नुकसान पहुंचाने के लिए पाकिस्तान का इस्तेमाल पसंद करता है।

उन्होंने कहा कि भारत को इस संघर्ष से सबक सीखने की जरूरत है। अगला सबक सी4आईएसआर (कमांड, कंट्रोल, कम्यूनिकेशन, कंप्यूटर, इंटेलिजेंस, सर्विलांस और रीकानिसन्स) और नागरिक-सैन्य संलयन का महत्त्व है।

दिल्ली में फिक्की के कार्यक्रम को संबोधित करते हुए उप सेना प्रमुख लेफ्टिनेंट जनरल राहुल आर सिंह।

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Army deputy chief: Operation Sindoor faced 3 foes – Pakistan, China & Turkiye

Source: The Times of India, Dt. 05 Jul 2025

India faced three adversaries on just one border during Operation Sindoor, with Pakistan being actively supported by China and Turkiye, a top Army officer said on Friday, adding that Beijing was even providing Islamabad with "live" satellite inputs on Indian military movements and deployments.

"We had one border and two adversaries, actually three. Pakistan was in the front. China was providing all possible support," Army deputy chief (capability development & sustenance) Lt Gen Rahul R Singh said at a seminar on 'New Age Military Technologies' organised by Ficci. "This is no surprise because 81% of military hardware that Pakistan is getting is all Chinese. China, of course, (followed) the good old dictum, kill with a borrowed knife... So, he (sic) would rather use the neighbour to cause pain than get involved in the mudslinging match on the northern borders," he added.

The deep Pakistan-China military collusiveness was reinforced during the cross-border hostilities from May 7 to 10, with Islamabad using a wide array of Chinese weapons and sensor-shooter networks, ranging from J-10 fighters firing the PL-15 beyond visual range air-to-air missiles to HQ-9 air defence missile batteries, as reported by TOI earlier. Lt Gen Singh, on his part, said China was able to test its weapons against those used by India during the conflict. "So, it's like a live lab available to them. It is something that we have to be very cognizant about," he said.

"Turkiye also played an important role in providing the type of support it did," he added. Pakistan, for instance, extensively used Turkish-origin Byker Yiha III kamikaze drones and Asisguard Songar drones during the conflict.The senior officer said crucial lessons among the multiple ones to be learned from Operation Sindoor include the need for an effective C4ISR (command, control, communications, computers, intelligence, surveillance and reconnaissance), a more robust air defence network and civil-military fusion.

The candid remarks come after Chief of Defence Staff Gen Anil Chauhan, speaking in Singapore on May 31, downplayed China's role in the conflict. While Pakistan may have leveraged Chinese commercial satellite imagery, there is "no proof of real-time targeting support" provided by Beijing, the CDS had said.

'Pak was getting live inputs about India from China'

Pointing to China using its extensive satellite network to monitor Indian military movements, Lt Gen Singh said, "When the DGMO-level talks were on, Pakistan actually was mentioning that we know that your such and such vector is primed and ready for action, and we would request you to perhaps pull it back. So, he (sic) was getting live inputs from China."

Lt Gen Singh also pointed out Indian population centres were not quite at risk during Operation Sindoor. "In the next round, we'll have to be prepared for that."

https://timesofindia.indiatimes.com/india/army-deputy-chief-operation-sindoor-faced-3-foes-pakistan-china-turkiye/articleshow/122257490.cms

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Post-Operation Sindoor, armed forces look at next-gen tech on drones

Source: The Tribune, Dt. 06 Jul 2025

Two months after Operation Sindoor, the Indian armed forces are looking at specific next-generation technologies for drones that can help dodge enemy surveillance and then launch an attack. The plan is to get the technology from indigenous sources, including the drone controlling hardware and software. Technologies like these have been developed internationally by a few countries, but the option of foreign sourcing has not been explored.

The forces want three crucial technologies in future drones: secure communication using software defined radios, GPS-free operations and the ability to beat the jamming of radio signals by enemy. Sources explained the three technologies saying software-defined radios (SDRs) are a game-changer in the drone world — both for controlling drones and detecting them.

Many internationally used military-grade drones employ SDRs for secure, flexible communication between the drone and ground control. SDRs allow real-time switching between frequencies and protocols, which helps avoid the enemy jamming. The SDR can be tweaked to detect and counter enemy drone and can rapidly adapt to new drone signals and threats. The drones can be programmed and fed with details of all possible flying arsenal of the enemy – planes , copters and drones -- and automatically track these.

The next technology being asked is GPS-free operations. This operates on coordinates or 'way points' being pre-fed into the drone's software to travel towards locations. These are programmed into a drone before take-off. The drone uses these coordinates to autonomously navigate or strike a target without needing real-time manual control or emitting a GPS signal that could be picked up by enemy surveillance.

Such drones have software that can be pre-fed with map of all contours allowing it to navigate. The Iranian drones, that struck Israel were using the same technology. The third technology is dodging the airspace which is 'electronically jammed' along the India-Pakistan or India-China borders. India wants drones that include anti-jamming modules and redundant communication system to maintain control.

During Operation Sindoor, Pakistan used a mix of armed and surveillance drones of Turkish origin. A majority of these were shot down. Also, in the ongoing Russia- Ukraine conflict, jamming and counter-jamming technologies have been used by both sides, constantly adapting their drone fleets.

https://www.tribuneindia.com/news/india/post-operation-sindoor-armed-forces-look-at-next-gen-tech-on-drones/

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Tri-services symposium to boost synergy between armed forces

Source: The Pioneer, Dt. 05 Jul 2025

A first-of-its-kind tri-services symposium that seeks to enhance synergy between the armed forces and the academia towards development of niche technologies and developing a robust defence ecosystem in the country will be held here on September 22 and 23, officials on Friday said.

Several top academic and research and development (R&D) institutions will take part in the 'Tri-services Academia Technology Symposium', which will be hosted at the Manekshaw Centre, the Army announced at a curtain-raiser press conference here. The announcement of the symposium comes nearly two months after India conducted Operation Sindoor in which indigenous technology and platforms played a key role.

Senior Army officials announced the schedule of the event, which will include two seminars, a panel discussion and exhibitions. The academic institutions will get an opportunity to present their ideas, proposals or innovations, and after evaluation some of those will be taken up for scaling up

through R&D and D&D (design and development) routes, said Major General C S Mann, Additional Director General (ADG), Army Design Bureau (ADB). The aim of the event is to develop an integrated perspective for creation of a synergised services-academia R&D ecosystem for development of niche technologies for the defence forces, he added. A portal was also launched on the occasion through which students, faculty or academic institutions can apply, in a bid to present their proposals or innovations, which have either been completed or in advanced stages of completion.

Later, Maj Gen Mann also fielded some questions from mediapersons, ranging from Operation Sindoor to the defence industry's role in the symposium. He was also asked about the Chinese technology being used in drones in markets, and how India plans to prepare itself further when it comes to use of drones and non-contact military warfare. "As far as you talked about drones and counter-drones, our focus is on them. A lot of things are happening for it, recently an emergency procurement announcement was also made, and our focus is on such equipment," he said.

The sub tagline of the upcoming symposium is Vivek Va Anusandhan Se Vijay. "As far as Chinese drones are concerned, I had said this in September last year that we were working on a framework and a framework has been made and pending approval. Once approved, tests will be done accordingly, so that there are no security vulnerabilities in our drones," the Army officer said. India launched Operation Sindoor on May 7, targeting terrorist infrastructure in territories controlled by Pakistan, in response to the April 22 Pahalgam terror attack. The strikes triggered four days of intense clashes that ended with an understanding on stopping the military actions on May 10.

India's homegrown platforms and air defence technology played a critical role during the conflict. The ADG of ADB also told reporters that the need for 'Atmanirbharta' or self-reliance is "well known to all of us". "But that' Atmanirbharta' is not restricted to manufacturing. What is required is that we need to have our own designing capabilities. And, for doing that... Research is the start point. And, therefore, there is a need to further develop the R&D ecosystem in the country," he said.

The R&D ecosystem is "spurring" in the country, but what is now required is how one is able to "harness that system and its potential" to be able to customise those dual-use technologies for military use or get new technologies developed for defence applications, and "thereby we start leading the technology curve in times to come", said Maj Gen Mann.

He said that a need was felt to have a platform wherein there was a mechanism to "understand each other's capabilities", capabilities of the academia, requirements of the services, and challenges faced by both of them.

"And, therefore, to deliberate on the mechanisms of collaboration," the Army officer added. He said there will be 'technology clusters' of the three Services and each will consist of about three to five officers, who are domain experts. The applicants, after initial filtration process, will be guided by these clusters and the applications would be "refined or aligned as per our requirements, so it can be converted into a military use case", Maj Gen Mann said. "Out of these, we are going to shortlist some of them which will be taken up for the R&D or D&D projects, to be funded by the Services," he added.

Also, innovations or projects which have been completed or in advanced stages of completion, which are to be exhibited, would be evaluated by technology clusters for selection for "scaling them up or customising them to our military use case", the official said. Applications on the symposium portal can be made till August 10 and applicants will be intimated by the first week of September. The event is to get the "best possible ideas", as also create a "better understanding of

each other's capabilities and requirements", he added. Also, even if ideas pitched are futuristic but has "good military applications" will be open for consideration, Maj Gen Mann said.

https://www.dailypioneer.com/2025/india/tri-services-symposium-to-boost-synergy-between-armed-forces.html

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नौसेना को मिलेगी पहली महिला फाइटर पायलट

Source: NavBharat Times, Dt. 05 Jul 2025

अगले साल आस्था पूनिया बनाएंगी रेकॉर्ड

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नई दिल्ली : भारतीय नौसेना को अगले साल अपनी पहली महिला फाइटर पायलट मिल जाएगी। इसके साथ ही नेवल एविशन में महिलाओं के लिए एक नया रास्ता और खुल गया है। नौसेना की सब-लेफ्टिनेंट आस्था पूनिया ने पायलट बनने की अपनी फेज-टू ट्रेनिंग पूरी कर ली। अब वह फाइटर स्ट्रीम के लिए चुन ली गई हैं। फाइटर पायलट बनने के लिए अब उनकी एक साल की ट्रेनिंग होगी जिसके बाद वह नेवल एविशन में फाइटर पायलट बन जाएंगी। वह मेरठ की रहने वाली हैं। नौसेना जॉइन करने के बाद नेवल एविएशन के लिए फ्लाईंग की बेसिक ट्रेनिंग एयरफोर्स अकैडमी में होती है। उसके बाद उनकी स्ट्रीम बेस्ड ट्रेनिंग होती है। नौसेना के INS डेगा, विशाखापट्टनम में दूसरा बेसिक हॉक कनवर्जन कोर्स पूरा हुआ है, जिसमें सब-लेफ्टिनेंट आस्था को विंग्स ऑफ गोल्ड मिले। आस्था नेवल एविएशन की फाइटर स्ट्रीम के लिए सिलेक्ट होने वाली पहली महिला पायलट बन गई।

आस्था नेवल एविएशन की फाइटर स्ट्रीम में सिलेक्ट हुईं।

सपनों को लगे सुनहरे पंख सब-लेफ्टिनेंट आस्था पूनिया को विंग्स ऑफ गोल्ड मिले। वह उत्तर प्रदेश के मेरठ की रहने वाली हैं।

अब एक साल की ट्रेनिंग होगी

अब आस्था पूनिया की फाइटर पायलट बनने के लिए एक साल की ट्रेनिंग होगी। ये स्पेशलाइज्ड ट्रेनिंग होगी। यह ट्रेनिंग पूरी होने के बाद वह फाइटर पायलट कहलाएंगी। नौसेना में पहले से ही हेलिकॉप्टर में और MR एयरक्राफ्ट में महिलाएं पायलट और नेवल एयर ऑपरेशंस ऑफिसर के तौर पर हैं। अभी नौसेना के पास एयरक्राफ्ट कैरियर से ऑपरेट करने के लिए 49 मिग-29K फाइटर एयरक्राफ्ट हैं।

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Navy assigns first woman officer to fighter stream

Source: Hindustan Times, Dt. 05 Jul 2025

Sub Lieutenant Aastha Poonia has become the first woman officer in the Indian Navy to be assigned to the naval aviation fighter stream, the navy said on Friday.

Rear Admiral Janak Bevli, ACNS (Air) presents the 'Wings of Gold' to Sub Lieutenant Aastha Poonia during the graduation of the Second Basic Hawk Conversion Course

Poonia, who is in her early 20s, will fly Hawk advanced jet trainers (AJT) for another year before she can qualify on the MiG-29K fighters that operate from the navy's aircraft carriers, a demanding job due to space constraints, high speeds, and a constantly moving platform, officials aware of the matter said.

"SLt Aastha Poonia becomes the first woman to be streamed into the fighter stream of naval aviation – shattering barriers and paving way for a new era of women fighter pilots in the navy," the navy said in a statement. Poonia opted to join the Indian Naval Academy at Ezhimala through the short-service commission entry after completing her BTech. She did her initial training at the naval academy before moving to Air Force Academy, Dundigal for basic flying training on Pilatus PC-7 Mk II aircraft and then flew the Hawk AJT at INS Dega in Visakhapatnam in the second stage of training.

The navy said it proudly celebrated the graduation of the Second Basic Hawk Conversion Course at INS Dega on July 3. "Lieutenant Atul Kumar Dhull and Sub Lieutenant Aastha Poonia received the prestigious 'Wings of Gold' from Rear Admiral Janak Bevli, ACNS (Air)."

Poonia will fly Hawks before she can possibly qualify on the MiG-29, which the officer will then fly from ashore for a few months before she can be assigned to an aircraft carrier for qualifying to operate from there, the officials said, asking not to be named. "Indian Navy has already inducted women officers as pilots and naval air operations officers in maritime reconnaissance aircraft and helicopters. Streaming of SLt Aastha Poonia into the fighter stream highlights the Indian Navy's commitment towards gender inclusivity in naval aviation and promoting Nari Shakti, fostering a culture of equality and opportunity," the statement added.

To be sure, women officers in the Indian Air Force are already flying fighter planes. IAF, the world's fourth largest air force, currently accounts for around 25 women fighter pilots. The service opened its fighter stream to women, a watershed in India's military history, in 2016.

The armed forces have opened all frontiers for women and are giving them opportunities on a par with their male counterparts. Women are being assigned central roles like men – they are flying fighter planes, serving on board warships, being inducted in the personnel below officer rank (PBOR) cadre, eligible for permanent commission, and were made eligible to join the National Defence Academy three years ago. But tanks and combat positions in infantry are still no-go zones for women in the army.

https://www.hindustantimes.com/india-news/navy-assigns-first-woman-officer-to-fighter-stream-101751654075993.html

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अहम रक्षा सम्मेलन का आज उद्घाटन करेंगे राजनाथ

Source: Jansatta, Dt. 07 Jul 2025

चुनौतियों की समीक्षा करने, सुधार शुरू करने और रक्षा सौदों की भूमिका को आगे बढ़ाने के लिए एक मंच के रूप में कार्य करने वाला एक प्रमुख रक्षा सम्मेलन सात से नौ जुलाई तक दिल्ली में आयोजित किया जाएगा जिसका उद्घाटन रक्षा मंत्री राजनाथ सिंह करेंगे।

रक्षा मंत्रालय ने रविवार को एक बयान में कहा कि रक्षा मंत्री राजनाथ सिंह 'कंट्रोलर कान्फ्रेंस–2025' का उद्घाटन करेंगे जिसे रक्षा अनुसंधान एवं विकास संगठन के भवन में रक्षा लेखा विभाग (डीएडी) द्वारा आयोजित किया जाएगा। इसमें कहा गया है कि उद्घाटन समारोह में चीफ आफ डिफेंस स्टाफ जनरल अनिल चौहान, तीनों सेना प्रमुख, रक्षा सचिव राजेश कुमार सिंह, वित्तीय सलाहकार (रक्षा सेवाएं) एस जी दस्तीदार और रक्षा लेखा महानियंत्रक मयंक शर्मा भी शामिल होंगे।

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India, Oz to develop tech for tracking submarines

Source: The Tribune, Dt. 05 Jul 2025

India and Australia have launched a joint research project to enhance the tracking of submarines and autonomous underwater vehicles, focusing on underwater acoustics and early detection technologies. Announced by Australia's Defence Ministry on Thursday, the three-year project will be conducted by Australian Defence Science and Technology Group's (DSTG) Information Sciences Division and its Indian counterpart agency, the Defence Research and Development Organisation's Naval Physical and Oceanographic Laboratory.

The Indo-Australian research will focus on towed sonar systems, deployed via flexible cables behind ships, to enhance the reliability, efficiency and interoperability of underwater surveillance. A key component of the project is 'target motion analysis' — the development of algorithms to estimate the position and movement of underwater targets.

"Target motion analysis is a crucial element in maintaining platform situational awareness, especially when operating in passive mode," the Australian Defence Ministry stated. The research will utilise 'towed array sonar' — a system consisting of multiple hydrophones arranged along a cable trailing behind a surface ship or submarine. These hydrophones detect underwater sounds from various directions, which are then processed to identify, filter and track acoustic signals emitted by potential maritime targets.

India, separately, is ramping up its own underwater surveillance efforts. The Defence Acquisition Council has approved the procurement of submersible autonomous vessels to enhance anti-submarine warfare (ASW) capabilities. In addition, India is developing unmanned surface and undersea platforms and building 16 new shallow-water anti-submarine warfare vessels designed to detect enemy submarines in shallow waters.

https://www.tribuneindia.com/news/india/india-oz-to-develop-tech-for-tracking-submarines/

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ड्रोन कालपुर्जो के आयात पर निर्भरता कम करेगा भारत

Source: Dainik Jagran, Dt. 05 Jul 2025

- सैन्य ड्रोन निर्माताओं के लिए 20 अरब रुपये का प्रोत्साहन कार्यक्रम शुरू करेगा
- चीन और तुर्किये पर आश्रित पाकिस्तान के ड्रोन कार्यक्रम का करेगा मुकाबला

नई दिल्ली, रायटर : ड्रोन के आयातित कलपुर्जों पर निर्भरता कम करने और चीन व तुर्किये की मदद पर आश्रित पाकिस्तान के ड्रोन कार्यक्रम का मुकाबला करने के लिए भारत नागरिक और सैन्य ड्रोन निर्माताओं के लिए 20 अरब रुपये (23.4 करोड़ डालर) का प्रोत्साहन कार्यक्रम शुरू करेगा। मई में पाकिस्तान के साथ चार दिवसीय संघर्ष के बाद भारत अधिक-अधिक स्वदेशी ड्रोन बनाने का प्रयास कर रहा है। इस संघर्ष के दौरान दोनों देशों ने एक-दूसरे के विरुद्ध बड़े पैमाने पर ड्रोन का इस्तेमाल किया था। अब दोनों देश ड्रोन हथियारों की दौड़ में उलझे हुए हैं।

दो सरकारी और एक उद्योग के सूत्र ने बताया कि भारत तीन वर्ष के लिए 20 अरब रुपये का कार्यक्रम शुरू करेगा, जिसमें ड्रोन के साथ-साथ उसके कलपुर्जों, साफ्टवेयर और काउंटर ड्रोन सिस्टम का निर्माण शामिल होगा। भारत का नागरिक उड्डयन मंत्रालय इस प्रोत्साहन कार्यक्रम का नेतृत्व कर रहा है। अतीत में भारत ने मुख्य रूप से अपने तीसरे सबसे बड़े हथियार आपूर्तिकर्ता इजरायल से सैन्य ड्रोन आयात किए हैं।

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अर्जेंटीना पहुचे मोदी, गले मिले राष्ट्रपति, रक्षा-व्यापार पर बात

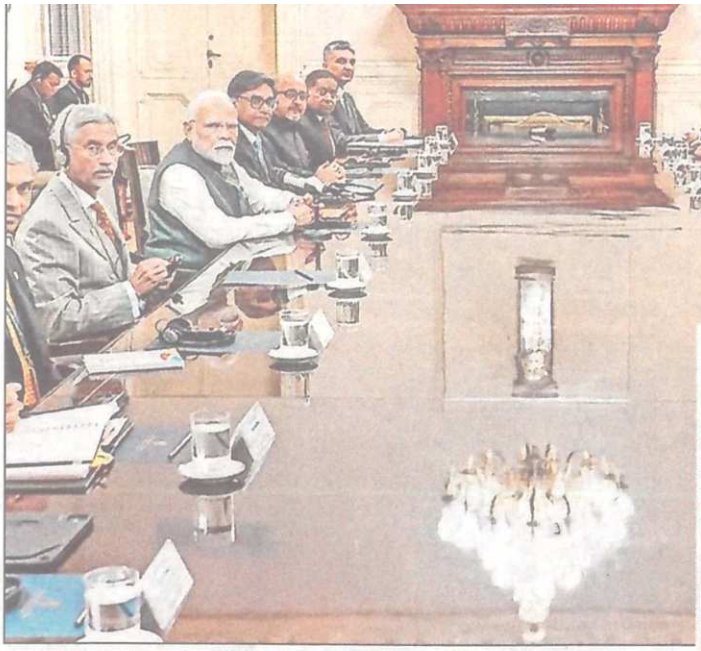
Source: NavBharat Times, Dt. 06 Jul 2025

प्रधानमंत्री नरेन्द्र मोदी घाना, त्रिनिदाद और टोबैगो की यात्रा के बाद अर्जेंटीना पहुंचे। यह 57 वर्षों में अर्जेंटीना में प्रधानमंत्री स्तर की पहली भारतीय द्विपक्षीय यात्रा है। प्रधानमंत्री के रूप में यह मोदी की दूसरी अर्जेंटीना यात्रा है, उन्होंने 2018 में जी 20 शिखर सम्मेलन के लिए यहां का दौरा किया था। शनिवार को पीएम मोदी ने अर्जेंटीना के राष्ट्रपति जेवियर मिलई से मुलाकात की। राष्ट्रपति जेवियर ने राजधानी ब्यूनस आयर्स में प्रधानमंत्री मोदी का गले लगकर स्वागत किया। PM मोदी और जेवियर ने द्विपक्षीय बातचीत भी की। सूत्रों के मुताबिक, बातचीत में दोनों देशों के बीच व्यापार, डिफेंस में और एग्रीकल्चर के सेक्टर में सहयोग बढ़ाने और तेल-गैस जैसे मुख्य ईंधन की सप्लाई पर बातचीत हुई। प्रतिनिधिमंडल स्तर की इस बातचीत में विदेश मंत्री एस. जयशंकर और विदेश सचिव विक्रम मिस्री भी शामिल हुए।

अर्जेंटीना के बाद ब्राजील जाएंगे PM, वहां होगा ब्रिक्स समिट

इससे पहले प्रधानमंत्री ने अर्जेंटीना के राष्ट्रीय नायक माने जाने वाले जनरल जोस डी सैन मार्टिन के स्मारक पर पुष्पांजलि अर्पित की। जोस फ्रांसिस्को डी सैन मार्टिन वाई मटोरस को दक्षिण अमेरिकी देशों- अर्जेंटीना, चिली और पेरू के मुक्तिदाता के रूप में भी जाना जाता है। इससे पहले मोदी ने कहा था कि अर्जेंटीना लैटिन अमेरिका में एक प्रमुख आर्थिक साझेदार और G20 में एक करीबी सहयोगी है। अपनी यात्रा के चौथे चरण में मोदी 17वें BRICS समिट में भाग लेने के लिए ब्राजील जाएंगे, उसके बाद राजकीय यात्रा करेंगे। अपनी यात्रा के अंतिम चरण में मोदी नामीबिया जाएंगे।

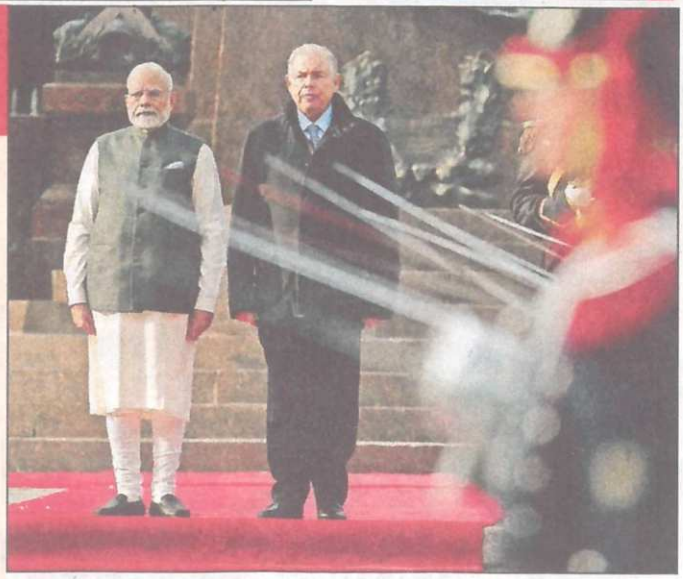
उधर, इंडोनेशिया के राष्ट्रपति प्रोबोवो सुबियांतो और नामीबिया के राष्ट्रपति समेत कई नेता BRICS समिट में भाग लेने के लिए शनिवार को ब्राजील पहुंच गए। इस समिट में रूस के राष्ट्रपति और चीन के राष्ट्रपति इस बार भाग नहीं ले रहे।



अर्जेंटीना के राष्ट्रपति जेवियर ने गले मिलकर PM का स्वागत किया। इसके बाद दोनों के बीच द्विपक्षीय वार्ता भी हुई।

सुरक्षा परिषद के लिए मिला साथ

भारत ने त्रिनिदाद-टोबैगो से बुनियादी ढांचे और दवाओं समेत कई क्षेत्रों में सहयोग बढ़ाने के लिए 6 समझौतों पर दस्तखत किए। संयुक्त बयान में कहा गया कि त्रिनिदाद और टोबैगो ने UN सुरक्षा परिषद में स्थायी सदस्यता के लिए भारत को संमर्थन देने की पुष्टि की है। इस बात भी सहमति बनी कि भारत 2027-28 के लिए सुरक्षा परिषद में अस्थायी सीट के लिए त्रिनिदाद और टोबैगो की उम्मीदवारी का समर्थन करेगा।



जनरल जोस डी सैन मार्टिन के स्मारक पर पहुंचे PM मोदी।

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Science & Technology News

Astronaut Shukla completes week on ISS

Source: The Pioneer, Dt. 05 Jul 2025

Astronaut Shubhanshu Shukla on Friday said he and fellow astronauts on the International Space Station relished aam ras, gajar ka halwa, moong dal halwa and delicacies from other countries as he completed a week on board the orbital lab.

Shukla, who docked at the ISS on June 26 as part of the Axiom-4 mission, completed a week on the ISS and got a day off, which he spent connecting with family and friends back on Earth. The Axiom-4 (Ax-4) crew, which includes Shukla and three other astronauts, completed 113 orbits around the Earth by the end of July 3, clocking over 4.66 million km, which is equivalent to nearly 12 times the distance between the Earth and the moon.

“It was a good moment. We got food from different countries and got to share it with all the crew,” Shukla, who has the call sign ‘Shux’, said in a brief interaction with scientists at the URSC, Bengaluru over HAM radio connection. On Thursday, Shukla also became the Indian astronaut with the longest stay in space, surpassing the record of his mentor Rakesh Sharma, who spent seven days, 21 hours and 40 minutes in space as part of the Soviet Interkosmos programme in 1984. As of Thursday, Shukla has spent nine days in space.

He said the most exciting part of the mission was looking back at Earth from the vantage point of the International Space Station. Shukla said working with people from different countries too was an exciting experience.

Sharing his experience of the launch from the Kennedy Space Centre in Florida, Shukla said, “The rocket launch was very dynamic, it was very fast. As you go higher, you go faster and the accelerations were quite high.”

The Axiom-4 mission has veteran astronaut Peggy Whitson as commander, Shukla as pilot, and Polish astronaut Slawosz Uznanski-Wisniewski and Hungarian astronaut Tibor Kapu as mission specialists. An Axiom Space statement said that in just seven days, the Ax-4 astronauts have already made significant contributions to scientific research.

“Peggy has been involved in cancer research using microgravity to study how tumour cells behave in space, work that is helping develop new therapeutic targets for metastatic cancers,” the Axiom Space statement said.

“Shux has been conducting experiments that explore how microgravity affects the growth and genetic behaviour of algae and how tardigrades, hardy microscopic creatures, survive and reproduce in space,” it said. The findings of the experiments conducted by Shukla could reveal new insights into the molecular mechanisms of cellular resilience, which could translate into clinically relevant knowledge on Earth.

“A proud moment for India as our Indian Air Force officer becomes the first Indian military astronaut to board the International Space Station (ISS) as part of AxiomMission4: First Indian in space after 40 years, Leading seven India-specific scientific experiments, representing India in over 60 global

studies on Biology, Earth science & Material science," Science and Technology Minister Jitendra Singh said.

"This milestone marks the resurgence of India's human spaceflight journey under the visionary leadership of Hon'ble PM Shri @narendramodi," Singh said. During his amateur radio interaction, Shukla said global collaboration was the key to the success of a mission like the International Space Station.

"Agencies like NASA, ISRO, SpaceX, Axiom, ESA, JAXA, everyone is coming together to make this mission successful. I realise the power of global collaboration for making such missions happen. So, definitely global collaboration is the key," Shukla said. Shukla is on a 14-day mission to the International Space Station as part of a joint ISRO-NASA project.

https://www.dailypioneer.com/2025/india/astronaut-shukla-completes-week-on-iss.html

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Scientists use nanoscale geometry for colors shift, making way for wearable tech

Source: Press Information Bureau, Dt. 04 Jul 2025

Scientists have now found a way to harness a property known as structural coloration to create tunable color-shifting materials using tiny plastic beads that can be used for wearable sensors, anti-counterfeit tags, display technologies and even eco-friendly paints.

The colour of the peacock's feathers change depending on how you look at it, varying between shimmering blues and greens. Similar effect is observed in the radiant wings of a butterfly. These are not colors made from paint or pigment, but from the structure of the surface itself.

Researchers at the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, an autonomous institute of Department of Science and Technology (DST), have uncovered how structural colors arising from nanoscale geometry can be finely tuned by varying both the size of colloidal spheres and the angle of light incidence.

At the heart of this breakthrough are polystyrene nanospheres, each about 400 nanometers wide —roughly a thousand times smaller than a grain of sand. These spheres naturally arrange themselves into a flat, hexagonal pattern when floated on water—a bit like a molecular-level jigsaw puzzle. This self-assembly, driven by simple surface forces, results in what the scientists call a close-packed monolayer.

Once this tiny layer is formed, the researchers use a precise method called reactive ion etching—a kind of nano-scale sandblasting—to gently shrink the spheres without disturbing their neat arrangement. This size reduction leads to a "non-close-packed" layout. Light behaves differently as it hits the altered surface.

When light reflects off this nanostructured layer, its interaction with the tiny spheres causes certain wavelengths (colors) to be amplified or diminished. By tilting the surface or changing the viewing angle, the reflected color shifts—typically towards blue. This phenomenon is predictable and tunable due to the way in which the spacing and size of the spheres affect light's path.

Unlike ordinary colorants, which fade over time or under sunlight, structural colors are durable and vibrant. This makes them ideal for a host of futuristic applications. The research stands out for its

scalability. The scientists used a cost-effective, “bottom-up” technique—letting nature carry out the self-assembling of the tiny particles organize. A little etching unlocks their ability to dance with light.

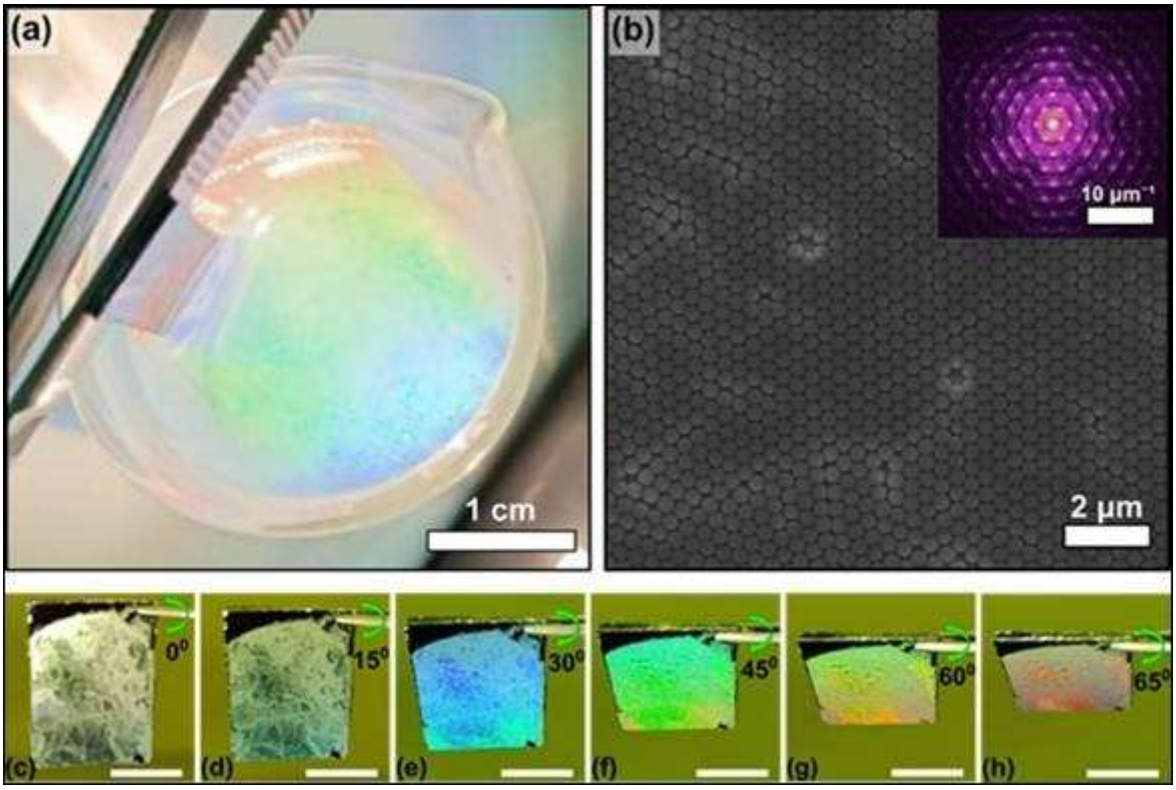

Fig: (a) Structural colors exhibited by a monolayer of PS spheres (dini = 401 nm) self-assembled at the A-W interface into a hexagonally ordered close-packed (CP) state. (b) Field emission scanning electron microscope image of PS monolayer in the CP state, inset shows FFT of the image. (c-h) Structural colors exhibited by the self-assembled PS spheres for different tilt angles. The scale bar represents 0.5 cm (c-h).

This work helps understanding and manipulating the fundamental ways in which light interacts with matter. By showing how slight changes in geometry can lead to dramatic visual effects, the CeNS team has opened the door to custom-designed optical materials that don’t rely on harmful dyes or complex fabrication processes.

Their study, recently published in the Journal of Applied Physics, explores how size-reduced monolayers of self-assembled polystyrene (PS) nanospheres exhibit angle-dependent optical properties due to collective light-matter interactions within the monolayer.

This research underscores the efficacy of colloidal self-assembly at the air-water interface, combined with reactive ion etching, in fabricating large-area, size-tunable monolayers of polystyrene nanospheres.

It provides an approach for developing advanced materials with customizable optical characteristics by elucidating the relationship between structural parameters and optical response.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2142197

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New pocket-sized sensor can detect a silent threat in the air

Source: Press Information Bureau, Dt. 04 Jul 2025

A new low-cost sensor can help detect toxic sulfur dioxide (SO2) gas responsible for respiratory irritation, asthma attacks, and long-term lung damage, at extremely low concentrations.

SO2 is a toxic air pollutant commonly released from vehicles and industrial emissions, and even minute exposure can cause serious health issues and long-term lung damage. It is hard to detect before it has an adverse effect on health. Monitoring SO2 levels in real-time is crucial for public safety and environmental protection, yet existing technologies are often expensive, energy-intensive, or unable to detect the gas at trace levels.

To overcome this, scientists from Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, an autonomous institute of Department of Science and Technology (DST), fabricated a sensor by combining two metal oxides -- nickel oxide (NiO) and neodymium nickelate (NdNiO3), through a simple synthesis process. While NiO acts as the receptor for the gas, NdNiO3 serves as the transducer that efficiently transmits the signal, enabling detection at concentrations as low as 320 ppb, far surpassing the sensitivity of many commercial sensors.

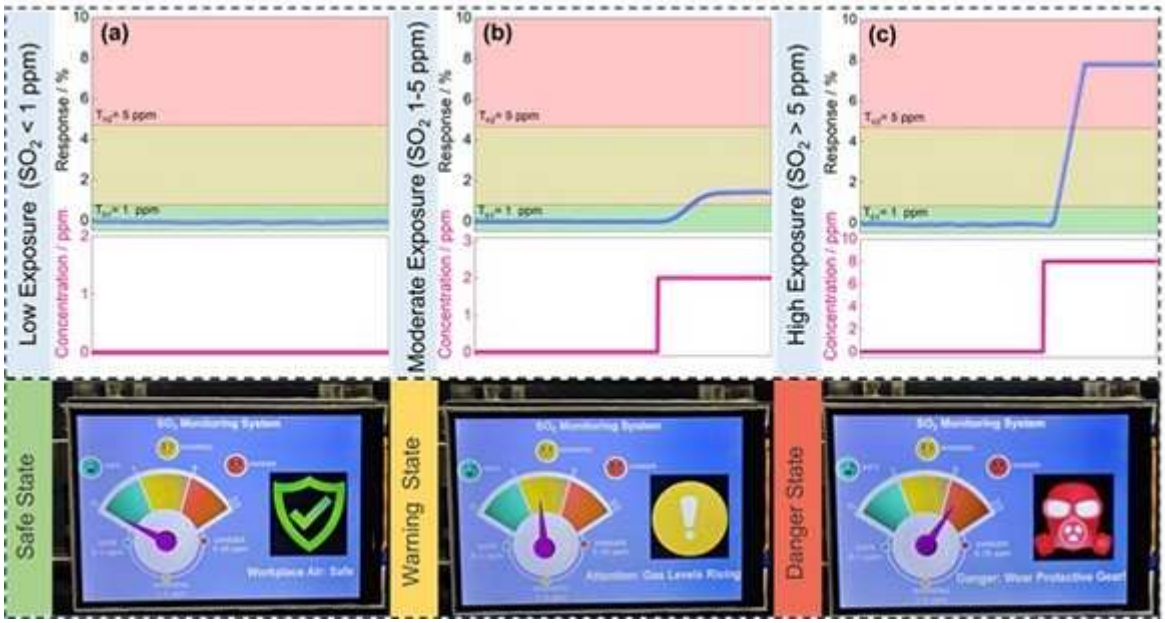

Fig: Threshold-triggered sensor response in a) Safe state, b) Warning state, and c) Danger state.

To demonstrate the capabilities of this material, the team led by Dr. S. Angappane developed a portable prototype that incorporates the sensor for real-time SO2 monitoring.

The prototype features a straightforward threshold-based alert system that activates visual indicators, green for safe, yellow for warning, and red for danger, allowing easy interpretation and response, even by users without scientific expertise. Its compact and lightweight design makes it suitable for use in industrial areas, urban locations and enclosed spaces where continuous air quality monitoring is necessary. With its high sensitivity, portability, and user-friendly operation, this sensor system offers a practical solution to monitor and manage SO2 pollution, supporting public health and environmental safety. This work demonstrates the potential of material science to create accessible technologies for real-world challenges.

The sensor was designed by Mr. Vishnu G Nath, with contributions from Dr. Shalini Tomar, Mr. Nikhil N. Rao, Dr. Muhammed Safeer Naduvil Kovilakath, Dr. Neena S. John, Dr. Satadeep Bhattacharjee and Prof. Seung-Cheol Lee. The research has been published in the journal Small.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2142200

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The Tribune
The Statesman
पंजाब केसरी जनसत्ता
The Hindu
The Economic Times
Press Information Bureau
The Indian Express
The Times of India
Hindustan Times
नवभारत टाइम्स
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The Pioneer