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समाचार पत्रों के 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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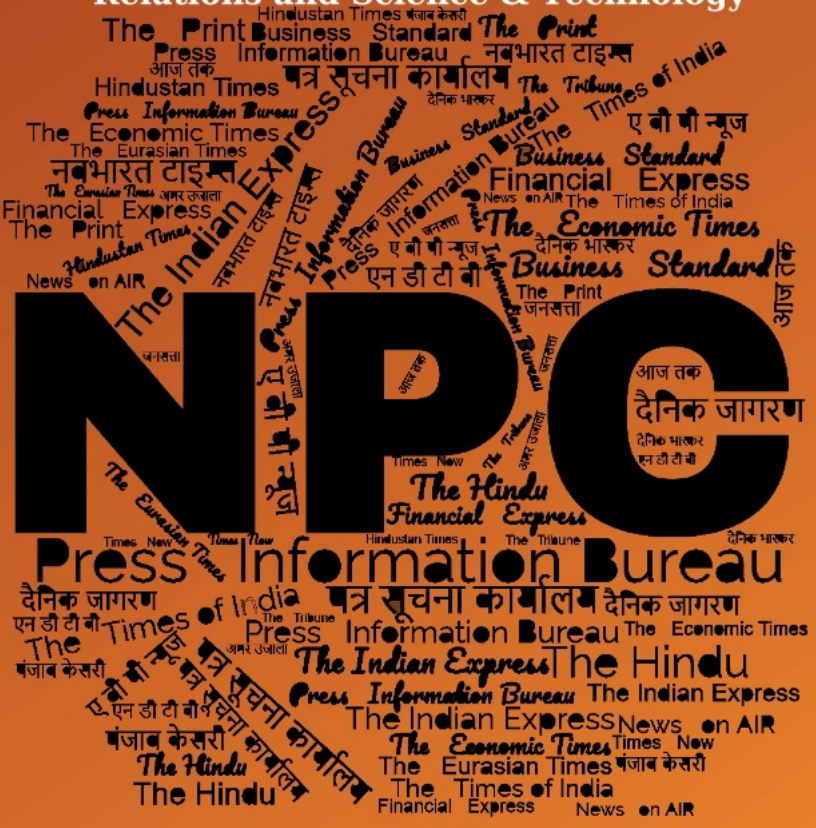

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DRDO News

Thu, 21 Nov 2024

DRDO जल्द करने वाला है सीक्रेट मिसाइल का परीक्षण... समंदर से निकलेगी दुश्मन की मौत!

भारतीय रॉकेट फोर्स (Indian Rocket Force) को और ताकतवर बनाने के लिए DRDO बहुत जल्द बंगाल की खाड़ी में नया मिसाइल परीक्षण कर सकता है. ये किस तरह की मिसाइल होगी इसका खुलासा तो नहीं किया गया है. लेकिन X हैंडल्स पर जो डिटेल्स आ रही है, ये टेस्टिंग विशाखापट्टनम के आसपास हो सकता है.

चूंकि वहां पर नौसैनिक बेस है इसलिए संभावना है कि सबमरीन लॉन्च्ड क्रूज मिसाइल (SLCM) की टेस्टिंग हो. या फिर K-15 Sagarika की. इसके पीछे की एक वजह 1730 km का NOTAM है. यानी परीक्षण से पहले डीआरडीओ नोटैम जारी करता है. यानी 27 से 30 अक्टूबर के बीच समंदर में कोई जहाज या विमान नहीं जाएगा.

इससे ठीक पहले 16 नवंबर को डीआरडीओ ने हाइपरसोनिक मिसाइल का परीक्षण किया था. जिसकी रेंज 1500 किलोमीटर थी. इसलिए यह संभावना भी बन रही है कि नोटैम की रेंज और विशाखापट्टनम नौसैनिक बेस से लॉन्चिंग को देखते हुए यह परीक्षण किसी मीडियम रेंज की मिसाइल का होगा.

प्रलय मिसाइल का प्रोडक्शन बढ़ा, जल्द होगी तैनाती

ये सॉलिड प्रोपेलेंट वाली मिसाइल है. जो 150 से 500 किलोमीटर की दूरी तक मार करती है. प्रलय की स्पीड 1200 km/hr है. जिसे बढ़ाकर 2000 km/hr किया जा सकता है. यानी हवा से टारगेट पर गिरते समय इसकी गति ज्यादा हो जाती है. चीन के पास इस तरह की डोंगफेंग-12 मिसाइल है. जबकि, पाकिस्तान के पास गजनवी, M-11 (चीन से मिली) और शाहीन मिसाइल है.

सवाल ये है कि इस बार कौन सी मिसाइल की टेस्टिंग होगी...

SLCM... पिछले साल फरवरी में भी इस मिसाइल का सीक्रेट परीक्षण किया गया था. इसके दो वैरिएंट्स और बनाए जा रहे हैं. लैंड अटैक क्रूज मिसाइल (LACM) और एंटी-शिप क्रूज मिसाइल (ASCM). यह असल में Nirbhay Missile का अपग्रेडेड वैरिएंट है. जिसका फिलहाल कोई नाम नहीं दिया गया है.

SLCM की रेंज 500 km है. इसने फरवरी में हुए टेस्ट के दौरान 402 km की रेंज हासिल की थी. इसकी लंबाई 5.6 मीटर है. वॉरहेड के साथ इसका वजन 975 kg है. यह इंडियन नेविगेशन सिस्टम, GPS के सहारे नेविगेट करते हुए टारगेट तक पहुंचती है. इसमें RF सीकर लगा है.

864 km/hr की घातक रफ्तार, रडार को धोखा देने की क्षमता

इन मिसाइलों की खासियत ये होगी के जब ये अपने लॉन्चर से निकलेंगे, उसके बाद इनके विंग्स खुलेंगे. अगर इन्हें निर्भय मिसाइल के प्लेटफॉर्म पर बनाया गया है, तो इस मिसाइल की गति करीब 864 से 1000 km/hr के बीच हो सकती है. इसमें 200 से 300 kg का वॉरहेड लगा सकते हैं.

SLCM में सी-स्किमिंग और टेरेन हगिंग कैपेबिलिटी है. यानी यह मिसाइल समुद्री पानी और जमीन से थोड़ा ऊपर उड़कर राडार को चकमा दे सकता है. यह ऐसी स्थिति होती है जिसमें उसपर निशाना लगाकर इसे निष्क्रिय करना बेहद कठिन हो जाता है.

दो तरह के वॉरहेड लग सकते हैं, इन पनडुब्बियों में तैनाती संभव

इसमें दो तरह के वॉरहेड यानी हथियार लगाए जा सकते हैं. पहला प्रेसिशन-कम-ब्लास्ट. यह बंकर और स्ट्रैटेजिक टारगेट्स को उड़ा सकता है. दूसरा एयरबर्स्ट जो कमजोर परत वाली चीजों को उड़ाने की ताकत रखता है. SLCM को कलवारी क्लास, सिंधुघोष और प्रोजेक्ट-75I क्लास सबमरीन में तैनात किया जाएगा.

भारत सरकार तीनों सेनाओं के लिए काफी ज्यादा संख्या में निर्भय क्रूज मिसाइल शामिल करने वाली है. निर्भय मिसाइल की 1000 किलोमीटर से ज्यादा रेंज है. यह भारी है. इसका वजन करीब 1450 किलोग्राम है. लंबाई 6 मीटर है.

दूसरी मिसाइल है... K-15 Sagarika, यानी समंदर से निकलती मौत

भारत की परमाणु मिसाइलों में से एक K-15 सागरिका मिसाइल की रेंज 750-1500 km है. भारतीय सेना के पास इसके दो वैरिएंट्स मौजूद हैं. पहली जमीन से दागी जाने वाली मिसाइल. दूसरी पनडुब्बी से दागी जाती है. इसके अलावा दो वैरिएंट्स बनाए जा रहे हैं. फिलहाल इसका इस्तेमाल भारतीय नौसेना ही कर रही है. इसकी गति इसे बेहद मारक बनाती है. यह 9260 km/hr की स्पीड से दुश्मन की ओर बढ़ती है. इसका वजन 6-7 टन होता है. लंबाई 33 फीट और व्यास 2.4 फीट है.

https://www.aajtak.in/defence-news/story/india-to-carry-out-more-tests-of-missiles-in-near-future-for-a-strong-rocket-forces-rptc-2102587-2024-11-21

Press Information Bureau
Government of India

Ministry of Defence

Thu, 21 Nov 2024

DRDO organises 11th Asian Fire Protection Inspection Council Meet & Asian Fire Safety Expo in New Delhi

The 11th Asia Fire Protection Inspection Council (AFIC) Meet, organised by the **Centre for Fire, Explosive and Environment Safety (CFEES)**, DRDO in collaboration with the Confederation of Indian Industry (CII), commenced in New Delhi on Nov 21, 2024. The AFIC is the Fire Protection organisation of 11 Asian countries for technical exchange and fostering of knowledge in the field of fire safety for development of Asian Fire Protection Technologies and Standards. Twenty one international delegates from Six Asian countries are participating in the three-day meet from 21 - 23 Nov 2024.

Secretary, Department of Defence R&D and Chairman DRDO Dr Samir V Kamat in his inaugural address said that the event is an ideal platform for the delegates to engage in meaningful exchanges for sharing knowledge, valuable insights, and collaborate on innovative solutions. He expressed confidence that the event would prove to be a key step towards realizing DRDO's vision of creating a strong, self-reliant India with world class fire safety technologies, ultimately contributing to national security and global competitiveness.

On the sideline of AFIC meet, an International Seminar on “Latest Trends in Fire Safety and Future Perspectives” and the Asian fire Safety Expo (AFSE) 2024 are also being organised by the CFEES. More than 100 delegates working in the field of fire safety from state fire services, Army, Navy, Air Force, BSF, DRDO & CAPF are attending the event.

The AFSE 2024 is being held as a Focused Show at India Industry Expo 2024, where Republic of Korea is participating as Country Partner. The expo is aimed at bringing key stakeholders from the Fire Safety technology industry under a platform to showcase advanced technologies and products for the fire safety and protection in India.

CFEES is holding three events concurrently under one roof, and has taken the challenge to bring all fire safety researchers, academicians, decision makers, users, professionals and industries at common platform. The event aligns with several key objectives, like encouraging innovation and self-reliance, building advanced capabilities, fostering industry collaboration, promoting technology transfer and domestic manufacturing, and strengthening national security.

https://pib.gov.in/PressReleasePage.aspx?PRID=2075617

THE NEW INDIAN EXPRESS

Thu, 21 Nov 2024

IT/BT, DRDO ink MoU to promote defence startups

The IT/BT department on Wednesday signed an MoU with the Defence Research and Development Organisation (DRDO) on cooperation and promotion of defence startups and testing facilities.

Dr BK Das, Director, Electronics and Communication, DRDO, told TNIE that they had held a meeting with IT/BT Minister Priyank Kharge earlier, where they discussed ways to help the sector grow. That meeting culminated in the signing of the MoU. He explained that under the pact, they are working in many areas, including creating a chamber and facility in the organisation, for firms to come forward and make radars, and even testing facilities for the startups.

Speaking on the second day of the Bengaluru Tech Summit 2024, Das said the DRDO will not just help startups develop their idea, but will also handhold them on their journey to becoming unicorns. He added that while the DRDO was working on such facilities across the country, through the MoU the focus at the moment will be on Karnataka. A similar project is also being envisaged in Tamil Nadu.

Meanwhile, Das also stated that there is a dearth of funds and time for supporting the growth of the defence and technology sector. He said that today, people are talking to them about electronic warfare, avionics warfare, and other technological advances, and the DRDO is working on providing support to them. He further said that India needs a lot more support in Made-In-India fighter jets.

At present, a lot of hardware is being imported. Now, fighter jet engines are being developed in India, but it will take many more years to mature. The country has developed many small turbofan engines, but they need more thrust. More technical work on this is under way.

Das also shared that the organisation was working on Industry 5.0, where man-unmanned (technology) teaming is happening for automation in warfare.

https://www.newindianexpress.com/cities/bengaluru/2024/Nov/21/do-it-in-bengaluru-nas-daily-vlogger-says-bengaluru-is-the-best-place-to-build-your-tech-dream

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Thu, 21 Nov 2024

Raksha Mantri meets his South Korean, Australian & New Zealand counterparts on the sidelines of 11th ASEAN Defence Ministers' Meeting-Plus in Lao PDR

In addition to his meeting with the US Secretary of Defense Mr Lloyd J Austin, Raksha Mantri Shri Rajnath Singh met Minister of National Defence, Republic of Korea Mr Kim Yong Hyun, Minister for Defence Industry & Capability Delivery of Australia Mr Pat Conroy and Defence Minister of New Zealand Ms Judith Collins on the sidelines of 11th ASEAN Defence Ministers' Meeting (ADMM)-Plus at Vientiane, Lao PDR on November 21, 2024.

Meeting with Minister of National Defence, Republic of Korea

Both sides agreed that bilateral defence cooperation is on a positive trajectory and the similarity of challenges and threats necessitated strong bilateral defense relations. Both sides agreed to work together on the 'Road map for Defence Industry Corporation' signed in February 2020 through established mechanisms like Defence Policy Dialogue (DPD). The next edition of DPD is scheduled in December 2024.

Raksha Mantri emphasised that defence manufacturing ecosystems of the two nations had a great potential for growth in co-production and co-development. He invited the Korean side to invest in India's defence corridors which has tremendous opportunities for Korean companies to set up manufacturing facilities in India. India and Korea share a Special Strategic Partnership which has made significant progress in recent years and is bound to move to the next higher level.

Shri Rajnath Singh also congratulated Mr Kim Yong Hyun on being appointed as the Defence Minister of Korea.

Meeting with Minister for Defence Industry & Capability Delivery of Australia

Raksha Mantri recalled that India-Australia partnership is grounded in shared interests, especially stability and security in the Indian Ocean region. He expressed happiness over the significant milestones achieved in the defence engagements over the last few years. Shri Rajnath Singh

pointed out the untapped potential for Indian and defence industries to collaborate and cooperate in niche areas.

Implementing arrangement on Air-to-Air refuelling was exchanged between both the countries. This would strengthen inter-operability between the two Air Forces, a significant step forward in bilateral relationship. Both sides agreed to take defence engagements to the next higher level by cooperating bilaterally as well as in regional context.

Meeting with Defence Minister of New Zealand

Raksha Mantri stated that India-New Zealand relationship was anchored in shared democratic traditions, commonality of institutions of governance, rule of law, English language, love for cricket, mountaineering and hockey and also shared vision of a peaceful, secure and prosperous Indo-Pacific region. He requested for early finalisation of Defence Cooperation Agreement (DCA) in order to further strengthen the defence cooperation between two countries, which is growing continuously through regular exchanges of visits of senior defence officials and naval ships. He also highlighted the capabilities of India's strong shipbuilding Industry and both sides agreed to enhance cooperation in this important area.

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Press Information Bureau
Government of India

Ministry of Defence

Thu, 21 Nov 2024

Raksha Mantri meets US Secretary of Defense on the sidelines of 11th ASEAN Defence Ministers' Meeting-Plus in Lao PDR

Raksha Mantri Shri Rajnath Singh met US Secretary of Defense Mr Lloyd J Austin on the sidelines of 11th ASEAN Defence Ministers' Meeting (ADMM)-Plus at Vientiane, Lao PDR on November 21, 2024. The two leaders commended the progress achieved by the India-US defence partnership, based on increased operational coordination, information-sharing, and industrial innovation. Both sides recognised the remarkable progress made under the US-India Defence Industrial Cooperation Roadmap, including ongoing collaboration to advance priority co-production arrangements for jet engines, munitions, and ground mobility systems.

Raksha Mantri recalled his recent productive and successful visit to the US in August 2024, wherein two important documents were concluded – the Security of Supplies Agreement (SOSA) and the Memorandum of Agreement regarding the deployment of Liaison Officers. Both sides welcomed ongoing efforts to deepen the military partnership and interoperability to maintain a free and open Indo-Pacific.

Drawing attention to the successful QUAD Summit attended by Prime Minister Shri Narendra Modi on September 21, 2024, Shri Rajnath Singh emphasised the need for both sides to work together on the agreed deliverables including the new regional Maritime Initiative for Training in the Indo-Pacific (MAITRI), the first-ever Quad-at-Sea Ship Observer Mission, and the launch of a

Quad Indo-Pacific Logistics Network pilot project, to support civilian response to natural disasters more rapidly and efficiently across the Indo-Pacific region.

Both sides affirmed support to the growing defence innovation collaboration between the two governments, businesses, and academic institutions fostered by India-US Defense Acceleration Ecosystem, by providing them with more joint challenges, funding opportunities and visibility. Both sides agreed to continue the momentum achieved in the last two and a half years through growing convergence to strategic interests and enhanced India-US defence cooperation. Raksha Mantri expressed gratitude to Secretary Austin for his enriching and lasting contribution for deepening and expanding India-US defence partnership.

In a post on X, Shri Rajnath Singh termed Secretary Lloyd Austin as a great friend to India, whose contribution towards strengthening India-US defence partnership has been exemplary. He wished him very best in all his future endeavours.

https://pib.gov.in/PressReleasePage.aspx?PRID=2075524

Press Information Bureau
Government of India

Ministry of Defence

Thu, 21 Nov 2024

India stands for rule-based international order for peace & prosperity in Indo-Pacific: Raksha Mantri at 11th ASEAN Defence Ministers' Meeting-Plus in Lao PDR

"India stands for freedom of navigation & overflight, unimpeded lawful commerce and adherence to international law for peace & prosperity in the Indo-Pacific," said Raksha Mantri Shri Rajnath Singh while addressing the 11th ASEAN Defence Ministers' Meeting-Plus forum at Vientiane, Lao PDR on November 21, 2024. Sharing his insights on the discussions on the Code of Conduct, he stated that India would like to see a Code that does not prejudice the legitimate rights and interests of nations which are not party to these deliberations. The code should be fully consistent with international law, in particular the UN Convention Law of Sea 1982, he added.

On the ongoing conflicts & challenges to international order, Raksha Mantri asserted that it is "providential" that the 11th ADMM-Plus is being held in Lao PDR, which has internalised the Buddhist principles of non-violence and peace. He was of the view that it is time that the Buddhist doctrines of peaceful co-existence be embraced more closely by all, as the world is increasingly getting polarised into blocks and camps, leading to increasing strain on the established world order.

"India has always advocated and practiced dialogue for resolving complex international issues. This commitment to open communication and peaceful negotiation is evident in India's approach to a wide range of international challenges, from border disputes to trade agreements. An open dialogue promotes trust, understanding, and cooperation, laying the foundation for sustainable partnerships. The power of dialogue has always proven effective, yielding tangible results that contribute to stability and harmony on the global stage. India believes that genuine, long-term solutions to global problems can only be achieved when nations engage constructively, respecting

each other's perspectives and working toward shared goals in the spirit of cooperation," said Shri Rajnath Singh.

Describing 21st century as the 'Asian Century', Raksha Mantri said the ASEAN region, in particular, has always been economically dynamic and bustling with trade, commerce & cultural activities. He added that, all through this transformational journey, India has remained a trusted friend of the region. Citing a quote by Gurudev Rabindranath Tagore, while he visited South East Asia in 1927, 'Everywhere I could see India, yet I could not recognise it', Raksha Mantri stressed that the statement symbolises the deep and widespread cultural & historical ties between India and South East Asia.

On India celebrating a decade of the Government's Act East policy, Shri Rajnath Singh pointed out that the dividends are paying out in the strengthening of India's ties with ASEAN and Indo-pacific nations. This vision re-emphasised the pivotal role of ASEAN as a cornerstone of the nation's policy, he added.

In view of the natural disasters wreaking havoc in different parts of the world, Raksha Mantri stated that it reminds of the perils of climate change. He complimented the chair for choosing the most relevant topic in today's scenario for the 11th ADMM-Plus Joint statement.

"Strengthening resilience to climate change in the defence domain requires multi-stakeholder engagement, from developing innovative solutions to managing the adverse impacts of climate change. This includes protecting vulnerable populations as well as safeguarding our defence installations," he added. Raksha Mantri highlighted the need to deepen the understanding of the interlinkages between climate change and threats to security. He called for developing an ADMM-Plus Defence Strategy on Climate Change.

Shri Rajnath Singh drew attention to the Global Commons - the shared natural resources and ecosystems essential to sustaining life and bringing prosperity on the planet. He underscored the need to safeguard these Global Commons in a just and balanced manner by not resorting to unilateral actions. These resources provide invaluable ecological, economic, and social benefits that extend beyond national boundaries, he said.

The 11th ADMM-Plus forum consisted of 10 ASEAN countries, eight Plus countries, and Timor Leste. The meeting was chaired by Deputy Prime Minister and Defence Minister of Laos General Chansamone Chanyalath.

https://pib.gov.in/PressReleasePage.aspx?PRID=2075446

THE ECONOMIC TIMES

Thu, 21 Nov 2024

Army chiefs of India, Nepal discuss collaboration

Kathmandu: Army chief General Upendra Dwivedi on Thursday held talks with his Nepalese counterpart General Ashok Sigdel, focussing on collaboration between the two armies, officials said. Dwivedi, accompanied by his spouse Sunita Dwivedi, arrived in Nepal on Wednesday for a five-day official visit at the invitation of Sigdel.

Dwivedi met Sigdel at Nepal Army Headquarters and discussed matters relating to the collaboration between the two armies, officials said. Earlier in the day, Dwivedi laid a wreath and

paid homage at Bir Smarak (Martyr's Memorial) at the Army Pavilion in Tundikhel, Kathmandu. He also received the Guard of Honour at the Army headquarters.

President Ramchandra Paudel will confer upon Dwivedi the rank of Honorary General of the Nepal Army during a special ceremony at Rastrapati Bhawan, Sheetal Niwas. During his visit, Dwivedi is scheduled to visit Army Staff College in Shivapuri, located on the outskirts of Kathmandu. He also plans to have a mountain flight, officials said.

https://economictimes.indiatimes.com/news/defence/army-chiefs-of-india-nepal-discuss-collaboration/articleshow/115527440.cms

THE ECONOMIC TIMES

Thu, 21 Nov 2024

India, Australia firm up air-to-air refuelling arrangement for military aircraft

India and Australia have firmed up an arrangement to enable the air forces of the two countries to carry out air-to-air refuelling, a move expected to increase the Indian military's reach in the IndoPacific region, officials said on Thursday.

Defence Minister Rajnath Singh and his Australian counterpart Pat Conroy MP announced the arrangement at a bilateral meeting on the sidelines of a regional security conclave in Vientiane, the capital city of Laos. Under the arrangement, the Royal Australian Air Force's (RAAF) air-to-air refuelling aircraft -- the KC-30A multi-role tanker transport -- will be able to refuel Indian military planes.

An implementing arrangement on air-to-air refuelling was also exchanged between both the countries, which would strengthen the interoperability between the two air forces, marking a significant step forward in bilateral relationships, the defence ministry said. Both sides agreed to take defence engagements to the next level by cooperating bilaterally as well as in the regional context, it added. The arrangement was firmed up on November 19 in New Delhi at the Australia-India air staff talks, according to an Australian government readout.

Welcoming the arrangement, Royal Australian Air Force's Deputy Chief of Air Force, Air Vice-Marshal Harvey Reynolds, said it strengthens the defence relationship between Australia and India.

"India is a top-tier security partner for Australia, and through our Comprehensive Strategic Partnership we are continuing to prioritise practical and tangible cooperation that directly contributes to Indo-Pacific stability," Reynolds said.

"The ability to conduct air-to-air refuelling with the Indian armed forces elevates our interoperability besides enabling us to cooperate more effectively in a range of different scenarios," he added.

Reynolds also called the arrangement a significant step forward as it will provide valuable opportunities to both sides to work closely and build trust and understanding.

The RAAF also conducts training and engagement activities with the P-8I Neptune surveillance aircraft of the Indian Navy. During his meeting with Conroy, Singh recalled that India-Australia partnership is grounded in shared interests, especially in the Indian Ocean.

He also expressed happiness over the "significant milestones" achieved in the defence engagements over the last few years, pointing out the untapped potential for Indian and defence industries to collaborate and cooperate in the niche areas, the defence ministry said.

https://economictimes.indiatimes.com/news/defence/india-australia-firm-up-air-to-air-refuelling-arrangement-for-military-aircraft/articleshow/115532820.cms

Hindustan Times

Thu, 21 Nov 2024

Rajnath Singh, Lloyd J Austin hail strides in India-US defence cooperation

Defence minister Rajnath Singh and his US counterpart Lloyd J Austin met at Vientiane in Laos and hailed the impressive strides in the India-US defence partnership, pivoting on increased operational coordination, information-sharing, and industrial collaboration and innovation.

“Both sides recognised the remarkable progress made under the US-India Defence Industrial Cooperation Roadmap, including ongoing collaboration to advance priority co-production arrangements for jet engines, munitions, and ground mobility systems,” the defence ministry said in a statement issued in New Delhi.

Singh and Austin held talks on the sidelines of the 11th ASEAN Defence Ministers’ Meeting (ADMM)-Plus.

The roadmap, adopted last year, seeks to fast-track technology cooperation and co-production in critical areas including air combat and land mobility systems, intelligence, surveillance, and reconnaissance, munitions, and the undersea domain.

The two leaders last met in August in the US and held wide-ranging talks to deepen the bilateral relationship, with the dialogue putting the spotlight on a raft of issues including defence cooperation, industrial collaboration, regional security, the Indo-Pacific region and other pressing international issues.

India and the US had then signed two key agreements to bolster defence cooperation --- the Security of Supply Arrangement (SOSA) to ensure the mutual supply of defence goods and services to resolve unanticipated supply chain disruptions, and a memorandum of agreement regarding the assignment of liaison officers to enhance cooperation, understanding, interoperability and sharing of information on matters of mutual interest.

“Both sides welcomed ongoing efforts to deepen the military partnership and interoperability to maintain a free and open Indo-Pacific,” the defence ministry said.

Talking about the successful Quad Summit attended by Prime Minister Narendra Modi in September, Singh emphasised the need for both sides to work together on the agreed deliverables, including the new regional Maritime Initiative for Training in the Indo-Pacific (MAITRI), and the launch of a Quad Indo-Pacific logistics network pilot project to support response to natural disasters more rapidly and efficiently across the vast region.

India, the US, Japan, and Australia are the Quad nations.

In August, the two ministers reviewed and appreciated the progress made in operationalising the Indo-Pacific Partnership for Maritime Domain Awareness, a Quad initiative for real-time, integrated and cost-effective maritime domain awareness in the crucial region.

Both sides affirmed support for the growing defence innovation collaboration between the two governments, businesses, and academic institutions fostered by India-US Defence Acceleration Ecosystem by providing them with more joint challenges, funding opportunities and visibility, the statement said.

They agreed to continue the momentum achieved in the last two-and-a-half years through growing convergence on strategic interests and enhanced defence cooperation, it added.

“It is always a matter of immense joy to meet my friend, Lloyd Austin. He has been a great friend to India. His contribution towards strengthening India-US defence partnership has been exemplary,” Singh wrote on X.

The latest meeting came a month after India signed a deal worth $3.5 billion with the US to acquire 31 MQ-9B drones to boost its defence preparedness, primarily with an eye on China. The agreement came after a deliberative process in New Delhi that spanned eight years, involved negotiations with two US administrations, incorporated the lease of two drones in this period, and required, at the American end, a challenging process of congressional approval.

Fifteen drones are meant for the Indian Navy, and eight each for the army and the air force.

Hindustan Aeronautics Limited (HAL) is also negotiating a deal with US firm GE Aerospace for the joint production of F414 engines in India. The two firms signed a memorandum of understanding in Washington in June 2023 to produce 99 F414 engines for India’s future LCA (light combat aircraft) Mk-2 programme.

The joint production of the engines will help the country overcome a striking technology gap, lay the foundation for indigenous development of bigger jet engines and possibly open doors to exports.

https://www.hindustantimes.com/india-news/rajnath-singh-lloyd-j-austin-hail-strides-in-india-us-defence-cooperation-101732197084253.html

INDIA TODAY

Thu, 21 Nov 2024

Is Pakistan scared of India's defence supremacy?

In the high-stakes world of military strategy, Pakistan’s relentless pursuit to match India's advancements has become increasingly evident. Whether through borrowing, buying, or brokering advanced technology, Islamabad seems determined to keep pace with its neighbour’s growing defence capabilities.

India’s successful test-flight of its first long-range hypersonic missile last week has intensified speculation about Pakistan’s next move. The key question remains: Will Pakistan acquire hypersonic missile technology? And, more importantly, what does this mean for India’s security?

India’s Hypersonic Breakthrough

The test-firing of India’s hypersonic missile has sent ripples across South Asia, with defence analysts warning of a potential arms race in the region. This landmark achievement places India among a select group of nations capable of deploying hypersonic technology, a feat that signals a significant leap in its defence strategy.

In response, Pakistan is reportedly considering ways to counterbalance India’s strategic advantage. For Islamabad, this isn’t merely about national securityâ€”it’s a matter of pride and maintaining its perceived 'strategic parity' with India.

Pakistan’s Options

Defence experts suggest that Pakistan is unlikely to develop indigenous hypersonic capabilities in the near future. Instead, it may turn to its long-time ally, China. Reports indicate that Pakistan could seek access to China’s Dongfeng-17 (DF-17), a cutting-edge hypersonic missile that has been a cornerstone of Beijing’s advanced military arsenal.

While China's support seems the most plausible route, experts have not ruled out the possibility of Pakistan exploring assistance from other countries, such as North Korea. However, these efforts are likely to remain heavily reliant on external support, with technical independence in this domain a distant prospect for Pakistan.

A Matter of Regional Power

Historically, Pakistan has prioritised military parity with India as a show of strength, even when the practical advantages are questionable. By acquiring hypersonic missile technology, Islamabad aims not only to counter India’s advancements but also to maintain its standing in South Asia’s evolving power dynamics.

The Road Ahead

Whether Pakistan succeeds in acquiring hypersonic missiles remains uncertain. However, India’s recent advancements have undeniably ignited a new wave of competition in the subcontinent. This evolving arms race could redefine the military balance in the region, with significant implications for regional security and stability.

The pressing question now is: How far will Pakistan go to bridge the gap, and what will be the consequences of this pursuit for South Asia?

As the region braces for a potential escalation, the world watches closely to see how this unfolding chapter in military strategy will shape the future of South Asia.

https://www.indiatoday.in/amp/world/story/pakistans-hypersonic-ambitions-a-new-arms-race-in-south-asia-2637051-2024-11-21

THE ECONOMIC TIMES

Fri, 22 Nov 2024

US believes Russia's attack in Ukraine showcased new missile

The United States believes that Russia fired a never-before-fielded intermediate-range ballistic missile on Thursday in its attack on Ukraine, an escalation that analysts say could have implications for European missile defense.

The U.S. military said the Russian missile's design was based on the design of Russia's longer-range RS-26 Rubezh intercontinental ballistic missile (ICBM). The new missile was experimental and Russia likely possessed only a handful of them, officials said. Ukraine's air force initially said the missile was an ICBM, sparking worries of a major escalation in the 2-1/2-year-old war.

While launching an intermediate-range ballistic missile (IRBM) sends a less threatening signal, the incident could still set off alarms and Moscow notified Washington briefly ahead of the launch, U.S. officials said. The Pentagon said the missile was fired with a conventional warhead but added that Moscow could modify it if it wanted.

"It could be refitted to certainly carry different types of conventional or nuclear warheads," said Pentagon spokesperson Sabrina Singh.

Russian President Vladimir Putin, in a televised address, acknowledged Moscow had struck a Ukrainian military facility with a new ballistic missile and said it was called "Oreshnik" (the hazel).

Jeffrey Lewis, a non-proliferation expert at the Middlebury Institute of International Studies in California, said Putin had earlier hinted that Russia would complete the development of an IRBM system after Washington and Berlin agreed to deploy long-range U.S. missiles in Germany from 2026.

"The RS-26 was always (a) prime candidate," Lewis said. Singh said the new variant of the missile was considered "experimental" by the Pentagon.

"It's the first time that we've seen it employed on the battlefield ... So that's why we consider it experimental," she said. Timothy Wright, at the International Institute for Strategic Studies, said Russia's development of new missiles may influence decisions in NATO countries regarding what air defense systems to purchase as well as which offensive capabilities to pursue. A new U.S. ballistic missile defense base in northern Poland has already drawn angry reactions from Moscow.

The U.S. base at Redzikowo is part of a broader NATO missile shield and is designed to intercept short- to intermediate-range ballistic missiles. Still, Putin said Thursday's launch of the new IRBM was not a response to the base in Poland but instead to recent Ukrainian long-range strikes inside Russian territory with Western weapons.

After approval from the administration of President Joe Biden, Ukraine struck Russia with U.S.-made ATACMS on Nov. 19 and with British Storm Shadow missiles and U.S.-made HIMARS on Nov. 21, Putin said.

Moscow said it targeted a missile and defense firm in the Ukrainian city of Dnipro, where missile and space rocket company Pivdenmash, known as Yuzhmash by Russians, is based. Russia, he added, was developing short and medium range missiles in response to the planned production and then deployment by the United States of medium and shorter range missiles in Europe and Asia.

"I believe that the United States made a mistake by unilaterally destroying the treaty on the elimination of intermediate-range and shorter-range missiles in 2019 under a far-fetched pretext," Putin said, referring to the IntermediateRange Nuclear Forces (INF) Treaty.

The United States formally withdrew from the 1987 (INF) Treaty with Russia in 2019 after saying that Moscow was violating the accord, an accusation the Kremlin denied.

https://economictimes.indiatimes.com/news/defence/us-believes-russias-attack-in-ukraine-showcased-new-missile/articleshow/115547743.cms

THE WEEK

Thu, 21 Nov 2024

LCA Tejas Mk 1A export deal on cards? Brazil looking for barter deal for Embraer C-390 Millennium, claims reports

In what may be reflective of the growing strategic relations between India and Brazil, the two countries may be heading for a defence exchange deal—Light Combat Aircraft (LCA) HAL Tejas Mk 1A for Embraer C-390 Millennium.

According to a report in IDRW, the deal is contingent on India selecting the medium-size, twin-engine, jet-powered military transport aircraft Embraer C-390 Millennium.

The barter deal would lead to Brazil adding the fourth-generation Tejas Mk 1A adding to its growing fleet as part of a modernisation drive of the Brazilian Air Force (FAB). The country had recently expressed its intention to buy more Gripen fighter jets from the Swedish company Saab. This was after Sweden chose the C-390 Millennium as its next military cargo aircraft. Brazil is looking for more affordable yet efficient fighter jets and LCA Tejas Mk 1A is being seen as a possible contender despite its smaller size when compared to Gripen.

Brazil reportedly views Tejas Mk 1A, featuring advanced avionics, indigenous radar systems, and multi-role capabilities, developed by Hindustan Aeronautics Limited (HAL) in collaboration with the Aeronautical Development Agency (ADA), as a replacement for its aging Northrop F-5 fighter jets, which forms a major part of FAB. Tejas Mk1A has a maximum takeoff weight (MTOW) of 13.5 tonnes, compared to F-5's MTOW of approximately 11 tonnes.

Brazilian Air Force Lieutenant-brigadier Marcelo Kantiz Damasceno had recently said, "Currently, we have the F-5 and the Gripen, but after 2030, we will need maybe two more kinds as the F-5 goes. So, while the Gripen remains, the Tejas is one of the options for our second or third fighter plane."

If the Tejas Mk 1A - Embraer C-390 Millennium deal goes through, it would be a major fillip to India's export capabilities and 'make in India' initiative.

https://www.theweek.in/news/defence/2024/11/21/lca-tejas-mk-1a-export-deal-on-cards-brazil-looking-for-barter-deal-for-embraer-c-390-millennium-claims-reports.html

The EurAsian Times

Thu, 21 Nov 2024

‘Space Dogfight’! China Readies Fighter Jet For Space War; Could Hunt Satellites With Its 6th-Gen Jet

At the 2024 Zhuhai Airshow, China made a significant leap forward in its military aerospace capabilities by unveiling a prototype of its sixth-generation fighter jet, the Baidi B-Type, also known as the “White Emperor.”

This advanced fighter is part of China's Project Nantiamen, a research initiative to develop next-generation aviation technologies. The unveiling of this aircraft highlights China's commitment to staying at the forefront of aerospace innovation, positioning itself to compete with global leaders in the field.

Project Nantiamen

Project Nantianmen is an advanced Chinese aerospace initiative responsible for developing the "White Emperor," a conceptual sixth-generation fighter aircraft. The project, overseen by the state-owned Aviation Industry Corporation of China (AVIC), aims to push the boundaries of aviation technology. Unveiled as a mock-up at the 2024 Zhuhai Airshow, the White Emperor has been described as an "integrated space-air fighter" with potential capabilities to operate in Earth's atmosphere and beyond.

White Emperor: Design Features

While many details remain speculative due to the project's classified nature, images and mock-ups at the Zhuhai Airshow emphasize sleek, angular designs that blend modern stealth with futuristic elements. The White Emperor's design claims to incorporate several advanced features that aim to set it apart from existing aircraft.

Integrated Space-Air Operations: The White Emperor is described as an "integrated space-air fighter," indicating an ambition to function in atmospheric and near-space environments. This includes potential space capabilities like engaging satellites or other orbital assets. Its design may incorporate propulsion and structural features suited for operating at extreme altitudes, though these capabilities remain unverified.

AI and Data Fusion Technologies: The White Emperor is claimed to be a dual-role aircraft designed for air superiority and strike missions. The inclusion of artificial intelligence (AI) and data fusion technologies indicates its future role as a networked combat system, integrating seamlessly with unmanned systems. This would allow the aircraft to process and disseminate real-time information on the battlefield, increasing situational awareness and enhancing combat effectiveness.

Stealth and Aerodynamics: The fighter has advanced stealth capabilities, including reduced radar cross-sections and infrared signatures. The cockpit design minimizes reflective surfaces, a common feature in next-generation stealth aircraft. The design includes canards, which are debated for their potential impact on stealth. While they enhance maneuverability, they might increase radar detectability, raising questions about the trade-offs in the design.

Payload and Armament: Its design maximizes internal space for advanced munitions, suggesting it could carry a diverse range of air-to-ground weapons. The White Emperor reportedly features expanded internal bays capable of carrying larger and heavier munitions, allowing it to fulfill multi-role missions (air-to-air and air-to-ground) while maintaining stealth. The emphasis on heavier payloads suggests adaptability for precision strikes, indicating a focus on versatility and operational readiness.

Flexibility and Versatility: Regarding operational flexibility, the fighter's modular construction is intended to streamline maintenance, ensuring it remains battle-ready for quick deployments. The fighter's landing gear is designed for operation on rough runways, unusual for stealth aircraft that traditionally require specialized infrastructure. This feature enhances its deployment flexibility in diverse environments.

Avionics and Systems: The aircraft's design also incorporates significant upgrades to avionics and cockpit ergonomics, enhancing the pilot's operational experience and improving the aircraft's

maintenance cycle. Enhancements to the fighter's avionics likely include AI-assisted systems for situational awareness and target acquisition. These features are designed to streamline operations and reduce pilot workload, a hallmark of sixth-generation designs. Improvements focus on protecting the pilot from infrared and laser targeting systems and enhancing operational efficiency.

Speculative Features: The claim of space-operational capability introduces technical challenges, including propulsion systems capable of transitioning between atmospheric and space flight and robust life-support systems. China's history of challenges with advanced jet engines (e.g. those used in the J-20) casts doubt on its ability to achieve these ambitious design goals soon.

Strategic Implications And Global Context

The strategic implications of China's Nantianmen Project and its White Emperor fighter highlight significant global military power dynamics shifts, particularly in aerospace technology and space militarization. Introducing the Baidi B-Type underscores China's growing ambition to challenge global powers like the United States and Russia in aerospace.

Tensions between Washington and Beijing continue to escalate, particularly in the context of military competition in the Pacific. Developing such an advanced fighter is a clear signal of China's intention to gain air superiority in traditional air combat and the new frontier of space.

Militarisation of Space: The White Emperor's reported "space-air integration" capability aligns with China's broader efforts to dominate near-Earth space, potentially enabling the disruption of enemy satellites and GPS systems. This could alter future battlefronts, where controlling space-based assets becomes critical for communications, navigation, and surveillance.

Global Competition: The U.S. and China are racing to perfect technologies such as hypersonic flight, space access, and integrated network-centric warfare. Each country aims to deploy its next-generation fighters by the 2030s. This unveiling underscores China's efforts to challenge the United States and European nations, which are also heavily invested in sixth-generation fighter technology. For instance, the U.S. is advancing its Next Generation Air Dominance (NGAD) program, while Europeans are working on two projects: FCAS and GCAP.

China's push into this domain is part of a broader trend to modernize its military and assert technological superiority. The White Emperor will likely be vital to the People's Liberation Army Air Force's (PLAAF) future lineup. This move could accelerate development timelines for next-generation fighters globally.

A shift in Power Dynamics in the Indo-Pacific: The White Emperor, alongside China's other advanced fighters like the Chengdu J-20 and J-35, positions the People's Liberation Army Air Force (PLAAF) to assert dominance in the Indo-Pacific. This could impact the balance of power, particularly concerning Taiwan, the South China Sea, and China's broader strategic ambitions.

Innovation in Aerospace and Domestic Self-Reliance: Project Nantianmen reflects China's drive for self-sufficiency in high-tech military sectors, reducing reliance on foreign suppliers. This initiative demonstrates China's ambition to lead in aerospace innovation, potentially influencing the global defense industry's focus and technological benchmarks.

Geopolitical Messaging: The White Emperor's unveiling serves as a strategic message to global powers about China's readiness to compete in advanced military technology. The timing, coinciding with the 75th anniversary of the PLAAF, underscores its importance as a symbol of China's rising military prowess and technological capabilities.

Implications For India

The Baidi B-Type, alongside other advanced Chinese military assets, would enhance the People's Liberation Army Air Force's (PLAAF) capabilities, challenging India in the region. With potential deployment along contentious areas like the Line of Actual Control (LAC), these advanced jets may provide China with enhanced reconnaissance and strike capabilities, pressuring India's defensive postures.

India must accelerate the development or acquisition of sixth-generation technologies to maintain a competitive edge. This highlights the urgency of furthering its indigenous defense programs, such as the Advanced Medium Combat Aircraft (AMCA). Despite the White Emperor's excitement, analysts remain cautious about the aircraft's true capabilities and future development. The model on display at the airshow is still considered a concept, and its operational status remains unconfirmed.

The prototype's potential remains speculative, and it is unclear how long it will take for such advanced technologies to be fully realized and integrated into the Chinese military. Whether the White Emperor will live up to its promises in the coming years will be critical in determining China's future role in global military affairs.

While the Baidi B-Type remains a concept at this stage, its unveiling at the Zhuhai Airshow showcases China's rapid advancements in military technology and its vision for the future of warfare. As global defense analysts continue to monitor the development of both U.S. and Chinese sixth-generation fighters, the competition is set to shape the future balance of power in both the air and space domains.

https://www.eurasiantimes.com/space-dogfight-china-readies-fighter-jets/#google_vignette

The EurAsian Times

Thu, 21 Nov 2024

Eurofighters To Get Next-Gen EW System; Europe Set To 'Future Proof' Typhoons Against New-Age Threats

On November 20, the EuroDASS consortium, responsible for developing the Praetorian self-defense suite for the Eurofighter Typhoon, unveiled details about its next-generation electronic warfare capabilities. These capabilities will future-proof the Typhoon aircraft against emerging threats well into 2060 and beyond.

Designed to improve situational awareness and increase survivability, the new system will play a key role in maintaining the Typhoon's status as a powerful combat aircraft in an evolving defense landscape.The consortium, consisting of Leonardo (UK), ELT Group (Italy), Indra (Spain), and Hensoldt (Germany), in partnership with systems integrator BAE Systems, is working on this system as part of an effort dubbed Typhoon Next Generation initiative.

The company pointed out that the new system will serve as a form-fit retrofit option for Typhoon's existing Defensive Aids Sub-System (DASS), currently known as Praetorian, named after the elite Roman bodyguard corps. The retrofit will not alter the aircraft's outer mold line, ensuring no impact on the current flight envelope. This means minimal clearance adjustments and seamless integration into both newly constructed aircraft and existing platforms, making the system highly adaptable.

The new system is expected to enhance the Typhoon's ability to operate in increasingly complex and contested environments, particularly against advanced Integrated Air Defense Systems (IADS). The consortium said it has already completed key milestones, including the successful "Praetorian eVolution" concept phase and flight trials of component technologies.

In 2023, digital receiver and band extension technologies were successfully tested on a prototype aircraft. Flight trials in 2024 saw the system successfully deployed on an operational Eurofighter Typhoon, providing crucial data on its performance against representative threat scenarios.

With this next-generation system, the Typhoon will be "more capable and survivable" and more operationally available, meeting the long-term needs of air forces across "Europe and the Middle East for decades to come."

Meanwhile, the current Praetorian system, which is already an integral part of the Typhoon's defensive capabilities, is being further enhanced as part of the Phase 4 Enhancement program. This four-nation initiative focuses on improving the integration between the platform's new AESA radar variants and the self-protection suite.

How Capable Is Typhoon's Next-Gen EW System?

The EuroDASS consortium has provided an overview of the advanced features of the next-generation electronic warfare system developed for the Eurofighter Typhoon. One of the system's key elements will be its ability to perform complex threat characterization. This will allow the aircraft to identify and assess multiple types of threats accurately.

Additionally, the system will feature digital radio frequency memory capabilities, improving the aircraft's ability to manage various electronic warfare scenarios. Another vital component will be the provision of interfaces for an external, high-powered electronic attack pod. This pod would be crucial in the Suppression of Enemy Air Defence (SEAD) missions, enabling Typhoons to effectively neutralize hostile air defense systems.

Furthermore, the new self-protection technology seamlessly integrates with the Typhoon's upgraded active electronically scanned array (AESA) radar. The collaboration between the radar and the self-protection suite will enhance the Typhoon's ability to detect, track, and neutralize threats at longer ranges, offering pilots a major tactical advantage.

Regarding data handling, the system will leverage a high-speed, high-bandwidth infrastructure capable of transmitting raw signal data to an advanced central processing hub. This will allow for real-time processing and enable pilots to simultaneously identify and prioritize multiple complex threats.

The improved data flow will also extend the operational range at which these threats can be detected and countered, ensuring Typhoon remains effective even in highly contested environments. The introduction of cognitive electronic warfare techniques is an innovative aspect of the system. These techniques involve applying artificial intelligence (AI) and machine learning (ML) to analyze high-fidelity data captured during missions.

"Cognitive Electronic Warfare (CEW), using AI and machine learning, will exploit the high-fidelity data captured and respond to new threats as they emerge," the statement read. These advanced technologies will enable the system to respond in real-time, adapting and learning from each encounter to improve defense mechanisms autonomously.

https://www.eurasiantimes.com/eurofighters-next-gen-ew-upgrades-poised/

Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 21 Nov 2024

Peptide-based tuneable piezoresponsive nanomaterials developed can help in energy harvesting and biodevice applications

A group of Indian researchers have developed different nanostructures by controlling the self-assembly pathway of the peptides. This control over the self-assembly process enables the adjustment of material properties in response to mechanical stimuli, effectively enhancing their piezoresponsive characteristics that can be used in energy harvesting, biodevices, soft robotics, flexible electronic and sensing devices.

Self-assembly of peptides, technically called supramolecular self-assembly, involves the spontaneous organization of small molecules into larger, structured formations driven by non-covalent interactions. This process is fundamental for creating nanodevices used in fields like electronics, optoelectronics, and biomedicine, where precise molecular control is crucial for performance.

Piezoelectric materials have the unique ability to generate an electric charge when subjected to mechanical stress. This characteristic makes them ideal for applications in sensors, actuators, and energy-harvesting devices, where mechanical energy is converted into electrical signals or vice versa.

Combining supramolecular self-assembly with piezoelectricity offers a powerful approach in designing next-generation nanomaterials with dynamic and customizable properties. This innovation not only enhances the functionality of smart materials but also paves the way for breakthroughs in technology and material science, driving progress in various fields from healthcare to electronics.

Researchers from the Centre for Nano and Soft Matter Sciences (CeNS), Bengaluru, in collaboration with the researchers from Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), Bengaluru, both autonomous institutes under the Department of Science and Technology (DST), have revealed a complex interplay between kinetic and thermodynamic states in the supramolecular self-assembly of peptides by manipulating multiple parameters including temperature and solvent compositions. This complexity plays a crucial role in determining the final structure and properties of the assembled nanomaterials.

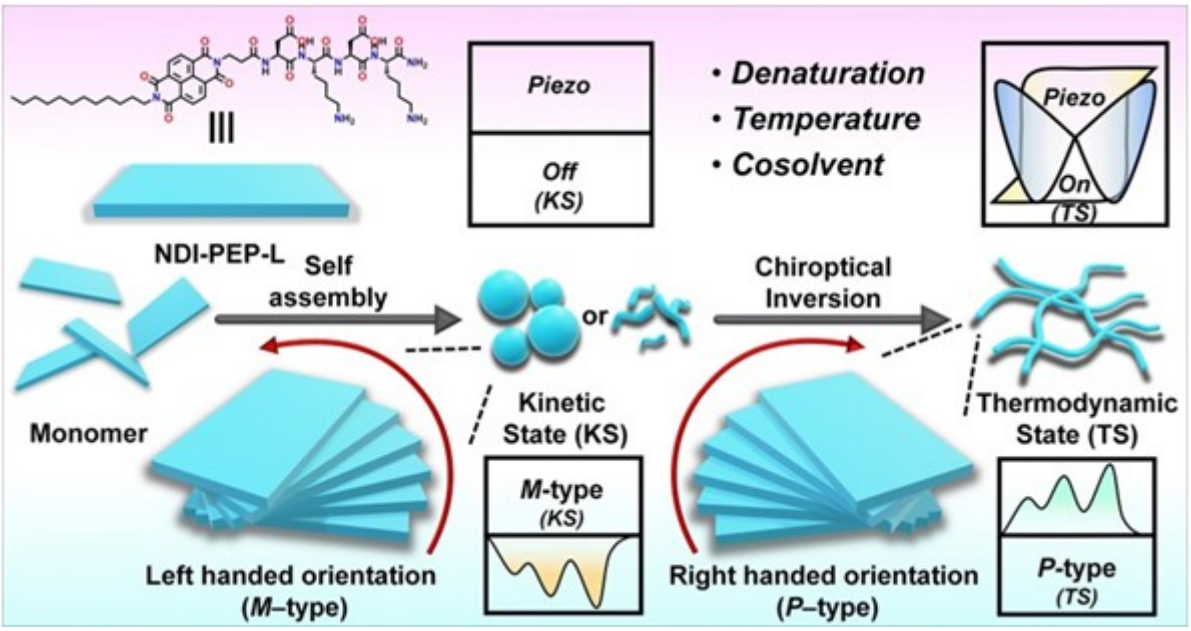
The controlled self-assembly process allowed precise manipulation of molecular arrangements, leading to organized and asymmetric structures in the nanomaterials. This structural asymmetry is essential for introducing piezoelectric properties, as it enables the material to generate an electric charge in response to mechanical stress.

This tunable piezoelectric behaviour of the self-assembled peptide-based nanomaterials has been recently published in the journal of Chemical Science by the Royal Society of Chemistry which opens new possibilities for designing materials that can be precisely controlled at the molecular level.

The study by Dr. Goutam Ghosh, CeNS and his student Ms. Aparna Ramesh along with Mr. Tarak Nath Das and Prof. Tapas Kumar Maji from JNCASR also observed switching of rotation of polarized light in a particular direction (chiroptical) during the denaturation process of peptides, upon heat treatment or thermal annealing and upon increase in the amount of cosolvent ratios which is a rare phenomenon.

They further illustrated that these findings were linked to structural changes that can directly impact the formation of nanostructures (nanoparticles and nanofibers) when various factors are altered. The researchers showed that these nanostructural modifications, triggered by chiroptical switching, can produce peptide-based tuneable piezoresponsive nanomaterials that respond to mechanical stress. This dynamic control over material properties paves the way for designing smart materials with customized functionalities.

Supported by the ANRF, erstwhile Science and Engineering Research Board (SERB), this study showcases the innovative approach of controlling piezoelectric properties in nanomaterials could lead to significant advancements in various fields, including sensors, energy harvesting devices, and biomedical technologies. The ability to dynamically tune material properties in response to external stimuli holds great promise for creating next-generation devices with enhanced efficiency and versatility. Their study not only advances the understanding of supramolecular self-assembly but lays the groundwork for future innovations in material science and technology. This work is expected to inspire further research and development, paving the way for the next generation of smart materials and nanotechnologies.



https://pib.gov.in/PressReleasePage.aspx?PRID=2075492

Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 21 Nov 2024

Signing of Project Agreements under Patent Acquisition and Collaborative Research and Technology Development (PACE) Programme of Department of Scientific & Industrial Research (DSIR), Ministry of Science & Technology

The PACE program by Department of Scientific & Industrial Research (DSIR) fosters collaborative research between Indian industries and R&D organizations, academic institutions, or universities. It emphasizes innovative work and supports the development of new technologies focused on the commercialization of products and processes addressing unmet industrial needs. Proposals targeting specific industrial sectors with practical applications are encouraged in this program. Projects demonstrating proof-of-concept with an aim to address significant unmet industrial needs are supported under this program. The program supports projects with a duration of 1 to 3 years.

Under the PACE program, Department of Scientific & Industrial Research (DSIR) has signed two separate Tripartite Agreements with M/s. Devashish Polymers Private Ltd. (DPPL), Mumbai and M/s. GPS Renewables Pvt Ltd., Bangalore & Agarkar Research Institute (ARI), Pune on 20-11-2024.

M/s. Devashish Polymers Private Ltd. (DPPL), Mumbai, aims to develop compounded elastomers and evaluate their performance for diverse applications under this project. Whereas, M/s. GPS Renewables Pvt. Ltd., Bangalore, in collaboration with Agharkar Research Institute (ARI), Pune, seeks to scale up and conduct pilot trials for enhanced microbial methane production from agricultural residues using anaerobic fungi.

Agreement signing ceremony was graced by Dr. N. Kalaiselvi, Secretary, DSIR & Director General, CSIR, in presence of Dr. Vipin Chandra Shukla, Scientist-G, & Head PACE, Commodore (Retd.) Amit Rastogi, Chairman-cum-Managing Director, National Research Development Corporation (NRDC), Dr. Prashant Dhakephalkar, Director, Agharkar Research Institute (ARI), Pune, Sh. Aditya Mody, Director & CFO, M/s. Devashish Polymers Private Ltd. (DPPL), Mumbai, Sh. Ravi Gomatam, CTO, M/s. GPS Renewables Pvt. Ltd., Bangalore, Dr. M.S. Shashi Kumar, Scientist-E, DSIR, Dr. Suman Mazumdar, Scientist-E, DSIR along with other team members from NRDC and DSIR.

Dr. N. Kalaiselvi, Secretary, DSIR & Director General, CSIR in her opening remarks emphasized that PACE program represents a cornerstone of DSIR's commitment to fostering innovation and collaborative research in India. Through this initiative, we aim to catalyze the development of new products, processes, and solutions that are not only technologically sound but also have a clear path leading to commercialization. Dr. N. Kalaiselvi congratulated both M/s. Devashish Polymers Private Ltd. (DPPL), Mumbai and M/s. GPS Renewables Pvt. Ltd., Bangalore along with Agharkar Research Institute (ARI), Pune, for undertaking the project which is poised to address pressing national challenges and contribute significantly to India's development goals. Dr. Kalaiselvi also

underlined the critical role such projects play in fostering industry-academia partnerships to create sustainable solutions and drive the nation's progress in science, technology, and societal impact.

Dr. Vipin Chandra Shukla, Scientist-G, & Head PACE mentioned that DSIR remains committed to nurturing ideas that transform into impactful solutions, and the PACE program is a testament to this mission. Together, we can drive sustainable industrial growth and technological self-reliance for India.

Sh. Aditya Mody, Director & CFO, M/s. Devashish Polymers Private Ltd. (DPPL), Mumbai and Sh. Ravi Gomatam, CTO, M/s. GPS Renewables Pvt. Ltd., Bangalore collectively lauded the PACE program of the DSIR and termed it as a game-changer program for the industry, fostering collaboration with academia and R&D institutions to drive innovation and develop solutions for real-world challenges.

They commended the DSIR initiative which not only accelerates innovation but also strengthens India's technological and economic landscape.

Dr. M.S.Shashi Kumar, Scientist-E and Member Secretary, PACE program, concluded the ceremony by proposing a vote of thanks to Dr. N. Kalaiselvi, Secretary, DSIR & Director General, CSIR and to all the other attendees for this ceremony.

https://pib.gov.in/PressReleasePage.aspx?PRID=2075399

THE HINDU

Thu, 21 Nov 2024

IISc launches product accelerator programme, Pravriddhi

The Foundation for Science, Innovation and Development (FSID) at IISc. has launched Pravriddhi, a pan-India Product Accelerator Programme that unites premier Indian institutions and enterprises to develop innovative solutions through strategic partnerships and cutting-edge R&D.

FSID said Pravriddhi provides a platform for enterprises, academia and research laboratories, and investors to collaborate to drive innovation and new product development for a self-reliant India.

"The Viksit Bharat 2047 vision projects India to reach a GDP of USD 30 trillion by 2047, with 25% of this growth expected to be driven by the manufacturing sector. Pravriddhi aims to achieve this vision by promoting market-driven, design-led manufacturing and enabling India to innovate and compete on the global stage," FSID said.

"With Pravriddhi, we aim to tackle these challenges by providing access to IISc's world-class facilities, R&D expertise, and a robust network of strategic partners across India.

By establishing innovation hubs nationwide, we intend to extend our proven program model to a broader audience, empowering diverse industries and fostering sustained economic growth and innovation across the country," Prof. Govindan Rangarajan, Director of IISc, said.

https://www.thehindu.com/news/national/karnataka/iisc-launches-product-accelerator-programme-pravriddhi/article68893741.ece

THE HINDU

Thu, 21 Nov 2024

ISRO signs Implementation Agreement with Australian Space Agency for Gaganyaan mission

Indian Space Research Organisation (ISRO) and Australian Space Agency (ASA) have signed an Implementation Agreement (IA) for further strengthening cooperation in space activities between Australia and India.

The IA, which enables cooperation between both space agencies on crew and crew module recovery for Gaganyaan missions, was signed between the two space agencies on November 20.

ISRO has embarked on the Human Spaceflight Mission, Gaganyaan programme with an objective of demonstrating human space flight capability (HSFC) in Low Earth Orbit in an Indian Crew Module with up to three crew members for up to three days, and safely recovering them after the mission.

The IA enables the Australian authorities to work with Indian authorities to ensure support for search and rescue of crew and recovery of crew module as part of contingency planning for ascent phase aborts near Australian waters. India and Australia are enduring strategic partners. Both space agencies are working closely and are committed to explore current and future collaboration activities.

The signing of the IA is another step forward in the cooperation between Indian and Australian space agencies. IA was signed by D.K. Singh, Director, HSFC on behalf of ISRO in Bengaluru, and Jarrod Powell, General Manager, Space Capability Branch, on behalf of ASA at Canberra.

Under the Gaganyaan programme, ISRO intends to carry out three un-crewed missions and one crewed mission. The first un-crewed mission is scheduled to take place in 2024-25, and the first crewed mission is scheduled in 2025-27.

https://www.thehindu.com/sci-tech/science/isro-signs-implementing-agreement-with-australian-space-agency-for-gaganyaan-mission/article68892773.ece

The Indian EXPRESS

Thu, 21 Nov 2024

IN-SPACe plans to open India's space ground operations to private players

After satellites and launch vehicles, the Indian National Space Promotion and Authorisation Centre (IN-SPACe) — the central agency for regulating and promoting the private space sector — is looking at ways for entry of private players in ground segments, according to a consultation document prepared by it.

Ground stations are essentially ground-based antennas that help in communicating with the satellites. Offering ground station as a service (GSaaS) such as satellite control, telemetry and tracking, space data reception, and space situational awareness on pay-per-use basis, the sector has

been envisioned to grow 30% by 2033 — from $0.14 billion to $2.5 billion, according to the document. This is in line with the government's vision to increase India's share in the global commercial space market from 2% to 8% by 2033.

"… a view emerged that sharing of the ground stations by multiple service providers or consortium should be encouraged, while considering the ISRO premises or sites, since it leads to several benefits, including reducing the need for accommodating multiple stations at the same site, cost benefits, resource optimisation, enhanced service coverage, and collaborative innovation," the document states.

Offering ground stations as a service (GSaaS) has several benefits. Setting up and maintaining ground stations can be exorbitant, and each station provides coverage over a limited area in the low earth orbit.

A network of ground stations needs to be set up spread across different geographies, building in redundancies or a system that in the event or a problem ensures that operations are uninterrupted, can become expensive. Also, updating technology can also be draining on the finances.

However, GSaaS is in its nascent stage and there are several challenges that private players face: Unclear regulations for setting it up within the country at the moment, the capital required, getting licence and spectrum, high rates for reception of earth observation data, challenges in on-boarding satellite operators as even that sector is in nascent stages, and high costs of several components needed.

After consultation with stakeholders, IN-SPACe has identified areas that it needs to work on. Primarily, providing clarity on regulatory processes, especially for filings with the International Telecommunication Union (ITU) for spectrum allocation. A single window mechanism for all approvals is also needed, streamlined processes and timelines. The industry will also need a waiver of licence fee for receiving data.

The document also states that the industry will need transfer of technologies from ISRO, while government support is needed for access to testing facilities, especially for large antennas for deep space communications. It will also need assistance for market access and networking opportunities with potential customers, investors, and partners.

In July 2024, the Hyderabad-based spacetech startup Dhurva Space became one of the first private players in the country to get approval from IN-SPACe to provide ground station as a service.

https://indianexpress.com/article/technology/science/in-space-looking-at-private-players-in-ground-segments-9680530/

The Indian EXPRESS

Thu, 21 Nov 2024

Can we design an interstellar spaceship to save humanity? Scientists ask

Picture an interstellar starship gliding past an icy, distant planet light-years away from Earth. The vessel is carrying generations of humans that are the last hope of the species, as they were the lucky few who escaped a world devastated by climate change to venture into the unknown, searching for a new home.

This grand vision of such a spaceship may not be confined to the realm of science fiction for too long. An international body of scientists, engineers, and urban planners called Project Hyperion has announced a competition for the best design of a massive spaceship that can sustain generations of humans on a long journey across the vast expanse of space.

The competition is open to the public and the team behind the winning design will be awarded a prize of $10,000. Each team must comprise at least one designer, one engineer, and one social scientist as per the rules of the competition.

The generation ship must be conceptually designed such that the crew of the interstellar vessel should be able to "live, reproduce, and die on the ship, with their descendants continuing the journey until reaching the destination."

"This competition uniquely explores the complex interplay between generation ship technologies and the dynamics of a highly resource-constrained society," Andreas Hein, a member of the Hyperion Project's organising committee, was quoted as saying.

The hypothetical exercise is also meant to aid research in how to fight off the real and existential threat of climate change that is currently facing Earth.

"I believe that thinking beyond Earth can offer valuable insights into how we might improve life here on 'spaceship Earth.' […] Just as in space, where we face numerous challenges, our planet requires innovative approaches to foster harmony and resilience amidst current global conflicts and challenges," Yazgi Demirbas, another member of the organising committee, was quoted as saying.

https://indianexpress.com/article/technology/science/can-we-design-an-interstellar-spaceship-to-save-humanity-scientists-ask-9679584/