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Mon, 15 Nov 2021 5:54PM

Three-day 'Rashtra Raksha Samparpan Parv' to be held in Jhansi, UP from Nov 17-19 as part of 'Azadi Ka Amrit Mahaotsav' celebrations

Key Highlights:

- ***Prime Minister to launch/dedicate to the Nation a number of schemes in a grand ceremony on Nov 19; Raksha Mantri to inaugurate the event on Nov 17***
- ***Initiatives include setting up of 100 new Sainik Schools; launch of NCC Border & Coastal Scheme, NCC Alumni Association & national programme of Simulation Training for NCC cadets***
- ***Laying of foundation stone of Rs 400 crore project of Bharat Dynamics Ltd at Jhansi node of UP Defence Industrial Corridor***
- ***Handing over of indigenously developed Light Combat Helicopter, drones/UAVs and Advanced EW suite for naval ships to the Armed Forces, in boost to Aatmanirbhar Bharat***
- ***Launch of digital kiosk at National War Memorial to pay tribute to fallen heroes & NWM mobile app***

Ministry of Defence (MoD) is formally dedicating a number of schemes to the nation in a celebration titled 'Rashtra Raksha Samparpan Parv' being organised from November 17-19, 2021 in Jhansi, Uttar Pradesh. These events are part of 'Azadi Ka Amrit Mahaotsav' celebrations.

Addressing a press conference, Defence Secretary Dr Ajay Kumar said Prime Minister Shri Narendra Modi will dedicate/launch several new initiatives of MoD to the Nation in a grand ceremony being organised in the precincts of Jhansi Fort on November 19, 2021 which also is the birthday of Rani Lakshmi Bai, the epitome of bravery & courage and a great National icon of Rashtra Raksha and India's Independence struggle. Raksha Mantri Shri Rajnath Singh will inaugurate the event on November 17, 2021.

The Rashtra Raksha Samparpan Parv is being organised along with the Government of Uttar Pradesh. The programme on November 19, 2021 will see the participation from Raksha Mantri, Raksha Rajya Mantri Shri Ajay Bhatt, Uttar Pradesh Governor Smt Anandiben Patel, Chief Minister Shri Yogi Adityanath and other dignitaries.

The new initiatives to be launched/dedicated to the Nation include:

· **Setting up of 100 New Sainik Schools:** The Cabinet recently approved setting up of 100 Sainik Schools throughout the country. These Sainik Schools will be set up in partnership with private educational institutions, NGOs and State Governments. At least one Sainik Schools is proposed in each State/UT. These 100 Sainik Schools shall be set up in the next two years. All Sainik Schools will be admitting girls also. The salient features of the proposed 100 Sainik Schools include:

a) While the schools will be set up by private educational institutions, NGOs, and State Governments, Government of India assistance will be available in the form of 50 per cent of fee support (up to a maximum of Rs 40,000 per annum) for 50 per cent of the students based on merit cum means.
b) The Sainik Schools set up will follow the norms stipulated by Sainik School Society in terms of infrastructure, facilities, teachers to ensure that children from the Schools are trained not only on academic curriculum but also get wholesome training on personality development, values and sports. Norms in this regard are being finalised in consultation with all stakeholders. A stakeholder consultation is proposed on December 07, 2021 which will be chaired by the Raksha Mantri to finalise these norms.
c) For the first time, these Sainik Schools will also have option to allow day scholars with early morning to late evenings timings so that they are able to take part in full day academic and extra-curricular activities.
d) Teachers of proposed Sainik School will be provided Teachers' Training through Indian Institute of Teachers' Training, Gandhinagar. An MoU is being signed with the Institute shortly.
e) Each Sainik School will be required to excel in an identified sports discipline in accordance with 'One School, One Sport' concept and 'Khelo India' scheme of Ministry of Sports & Youth Affairs.
f) Existing Government and private schools as well as Greenfield schools can apply under the scheme. A website has been started to seek Expression of Interest from interested private/NGOs/State Government. The response has been very encouraging. Already 89 Expression of Interests have been received. Others interested in collaborating for Sainik Schools may apply at https://sainikschool.ncog.gov.in/.

· **Launch of NCC Alumni Association:** Many prominent leaders in practically all fields of the society whether it is Armed forces, politics, industry, bureaucracy, art and culture or academics have emerged from the National Cadet Corps (NCC). Many have the desire to contribute to the nation building process through NCC. With the objective to provide a formal platform to enable NCC Alumni to reconnect with NCC, it has been decided to set up an NCC Alumni Association.

The NCC Alumni Association is expected to fulfill a felt demand of lakhs of former NCC cadets. NCC Alumni Association is expected to further the aims of NCC and assist in nation-building. It is proposed to launch the NCC Alumni Association by enrolling the Prime Minister, a former NCC cadet, as the first member of the Association on November 19. NCC Alumni Association is open to all NCC Alumni and its membership is extremely simple to obtain.

The process for applying and getting approval of membership is completely online. The same will be available on website www.nccauto.gov.in/alumni which will be made live after November 19. A payment of Rs 100 is to be made for life time membership of the NCC Alumni Association which can also be paid online on this website.

· **Launch of National Programme of Simulation Training for NCC Cadets:** Ministry of Defence is launching a nation-wide programme to scale up simulation training facilities for all the three wings of NCC - Army, Air and Naval. This will enable NCC cadets across the country to get trained in their respective areas. For the Army Wing of NCC, Rifle Firing Simulators are being set up. For Air Wing, Microlight flying simulators are being set up. For Naval Wing, Rowing simulators are being set up. The number of simulators proposed to be increased are as follows.

S. No.	Wing	Present No of Simulators	Proposed No of Simulators
1	Army	1	98
2	Air	6	44
3	Naval	10	61

Rifle Firing Simulators will now be available in all Group HQs. With the increased number of simulators, it is expected that all NCC cadets will get hands-on training in this regard. These simulators have already been sanctioned and ordered for installation. The programme is proposed to be dedicated to the Nation by the Prime Minister on November 19.

· **NCC Border and Coastal Scheme:** It may be recalled that the Prime Minister had announced on August 15, 2020, from the ramparts of the Red Fort, that NCC shall be expanded in border and coastal areas. A

scheme for expanding NCC by one lakh cadets dedicated to the border and coastal areas of the country was approved by Ministry of Defence in September 2020. A Committee was formed with District Collectors of border and coastal districts as Chairman and relevant stakeholders, including Panchayat Presidents and local NCC officer as members to identify the schools/colleges in border areas where NCC should be started under the scheme. Accordingly, 1,283 schools and colleges were identified out of which 896 are in border areas and 255 are in coastal areas and 132 are in Taluks housing Air Force stations. 27 States/UTs have benefitted with the implementation of the scheme.

Despite constraints of COVID-19, NCC was started in the identified educational institutions in October 2020. Associate NCC Officers from these educational institutions were trained both online and also at NCC Training Academy at Kamptee and Gwalior. Since Covid-19 did not permit physical training, NCC cadets were imparted theoretical component through online medium. Wherever schools/colleges had opened, physical training was also imparted. The State/UT wise distribution of educational institutions with NCC

S. No.	State/UTs	No of Educational Institutions in border/Coastal Areas
1	Jammu & Kashmir	50
2	Ladakh	19
3	Punjab	288
4	Rajasthan	62
5	Himachal Pradesh	35
6	Uttarakhand	53
7	Uttar Pradesh	125
8	Arunachal Pradesh	31

9	Assam	52
10	West Bengal	49
11	Manipur	22
12	Meghalaya	60
13	Mizoram	18
14	Nagaland	22
15	Sikkim	11
16	Tripura	5
17	Bihar	37
18	Gujarat	92
19	Andhra Pradesh	28
20	Goa	10
21	Karnataka	14
22	Kerala	42
23	Maharashtra	29
24	Orissa	22
25	Puducherry	36
26	Tamilnadu	61
27	Telengana	10

The implementation of scheme for last one year is going to be showcased as part of Rashtra Raksha Samarpan Parv on November 19.

· **Laying of foundation stone of Rs 400 crore project of Bharat Dynamics Ltd at Jhansi Node of UP Defence Industrial Corridor:**

Government has decided to set up two Defence Industrial Corridors in the country. These are in Tamil Nadu and Uttar Pradesh. The UP Defence Industrial Corridor has nodes at Agra, Aligarh, Jhansi, Chitrakoot, Lucknow and Kanpur. For the Jhansi Node of the UP Defence Industrial Corridor, the state Government has made nearly 1,034 hectares of land made available.

Bharat Dynamics Ltd, a Defence Public Sector Undertaking (DPSU), is setting up a plant for propulsion system for Anti-Tank Guided Missiles in the Jhansi Node. It will be spread over 183 acres of land in Jhansi. The facility will involve an investment of Rs 400 crore. It is expected to provide direct employment to 150 people and indirect employment to nearly 500 people. The foundation stone of the project will be laid by the Prime Minister on November 19.

· **Thrust on 'Aatmanirbhar Bharat' in Defence:** Ministry of Defence has taken several steps to promote 'Aatmanirbhar Bharat' in defence in the last two years. These include issue of positive indigenisation lists, earmarking of 64 per cent of capital procurement budget for the

domestic industry, promotion of startups under Innovations For Defence Excellence (iDEX) initiative, speeding up of capital acquisition process and setting up of Defence Industrial Corridors among others.

As a demonstration on thrust on 'Aatmanirbhar Bharat, the Indian Army, Indian Air Force and Indian Navy are adopting indigenously designed and developed platforms for their use. Three platforms will be formally handed over by the Prime Minister to respective Service Chiefs on November 19. These platforms depict maturing of Indian defence industry ecosystem with contributions from Defence Research and Development Organisation (DRDO), DPSUs and Defence industry and startups.

The Prime Minister will hand over Hindustan Aeronautics Limited, HAL designed and developed Light Combat Helicopter (LCH) to Chief of the Air Staff. LCH is a new addition to HAL's helicopter Division. This twin-engine helicopter is a dedicated combat helicopter of 5-8 tonne class. The LCH incorporates advanced technologies and stealth features for effective combat roles and is designed to carry out roles such as destruction of enemy air defence, counter insurgency, search and rescue, anti-tank, Counter Surface Force Operations etc. The LCH is the only attack helicopter in the world which can land and take-off at an altitude of 5,000 m (16,400 ft) with considerable load of weapons & fuel.

The Prime Minister will also hand over drones/UAVs designed and developed by Indian startups to Chief of the Army Staff. Indian Army has decided to procure these drones from Indian industry/startups after detailed testing and trials. The deployment of Indian UAVs by Indian Armed Forces is also a proof of growing maturity of Indian drone industry ecosystem.

The Prime Minister will handover DRDO designed and Bharat Electronics Limited (BEL) manufactured Advanced EW suite for naval ships including that for Indian Aircraft Carrier Vikrant. The Advanced EW suite will be used in different naval ships including destroyers, frigates etc. and marks a big step towards 'Aatmanirbhar Bharat'.

· **Kiosk to pay tribute to the fallen heroes at National War Memorial:** Two electronic kiosks have been installed at the National War Memorial (NWM) to encourage visitors to register their presence and pay virtual homage to the fallen heroes. This augmented reality powered facility has been designed and installed by BEL under the overall guidance of NWM Directorate. It enables a visitor to pay floral homage to one or more selected martyrs on a simple click of the button. This facility will be formally dedicated by the Prime Minister on November 19.

· **Mobile app of National War Memorial:** The NWM Directorate has also developed a mobile app of National War Memorial. The app provides a virtual tour of NWM with 360 degree experience. It is available on Google playstore and iStore. The app allows for multi-lingual interaction and enables tour assistance to visitors with the help of 166 Bluetooth beacons installed in the NWM campus. Based on these beacons, visitors can listen to commentary in 21 languages based on the location within NWM.

https://pib.gov.in/PressReleasePage.aspx?PRID=1772032

The EurAsian Times

Tue, 16 Nov 2021

China warns of more tensions as India deploys Supersonic BrahMos Missile along the disputed Himalayan Border

By Sakshi Tiwari

The 18-month-long India-China border standoff is unlikely to end anytime soon. Amid a significant mobilization of troops and heavy weaponry along the contested boundary in the Himalayas, Beijing has sounded an alarm over reports of India deploying a lethal cruise missile.

A file photo of India test-firing the BrahMos missile. (via Twitter)

Chinese observers have expressed deep concern over the news of India positioning its BrahMos missiles along the Line of Actual Control (LAC). They have warned New Delhi of "new barriers" in talks related to de-escalation if it were to go ahead with the transportation of its most advanced missile to the western side of LAC, reported Global Times.

Chinese officials and observers have taken cognizance of news of road-widening work being undertaken by the Indian side near LAC. The Indian government had reportedly informed the country's Supreme Court that it needs to widen the roads leading to the LAC so as to move BrahMos missiles and other military equipment to the Western side of the India-China border.

However, the Chinese observers were quick to dismiss any real threat that India's supersonic missile would pose to its security.

"This is why tension keeps rising along the China-India border and unwanted military conflicts break out," Song Zhongping, a Chinese military expert, was quoted as saying by the state-owned Global Times.

The deployment of the BrahMos shows "India's unstoppable greedy ambition to encroach on western China's territory", Song said, thus putting the entire onus of the conflict on New Delhi even as Beijing stays non-committal on the de-escalation matter.

India's Missile Deployment

Last month, the Indian armed forces had invited some journalists to showcase its missile systems deployed at the eastern sector of the LAC in Arunachal Pradesh.

According to The Hindu, indigenously-built Pinaka and Russian Smerch multi-range rocket systems were deployed in the Tawang sector in Arunachal Pradesh that China claims as its own territory calling it 'Southern Tibet'.

India also reportedly deployed the BrahMos missiles with reports of increased Chinese aggression coming to light. The BrahMos, with a range of 290km, can hit targets deep inside the Chinese state.

The BrahMos, developed jointly by India and Russia, is considered the world's fastest supersonic cruise missile. All three services — the Indian Army, the Navy, and the Air Force — have tested the missile from their platforms.

The deployment of BrahMos is in line with the Indian Army chief's comments earlier this year that troops might have to remain stationed along the LAC during this winter as the Chinese refuse to budge.

Even as India has tried to reach a breakthrough during the military-level talks that have run into several rounds without reaching an acceptable solution, it now wants to operate from a position of strength.

With reports emerging about China having built a dual-use village along Arunachal as previously reported by Eurasian Times, the military effort is set to further intensify on the Indian side.

China Plays Down 'BrahMos Threat'

While Chinese analysts did raise the issue of BrahMos deployment, they have dismissed any threat emanating from this, according to Global Times.

China could even strike and destroy BrahMos missile silos and other military facilities in advance in events of conflicts, Song emphasized, explaining that "India's poor infrastructure construction in the west section of China-India border limits the maneuverability and invisibility of the missile base", he told Global Times.

This observation highlight a probable mismatch between the infrastructures on both sides. It is worth recalling how the Chinese PLA had taken advantage of the lack of roads in areas close to the Pangong Tso during last year's standoff.

China has also deployed sophisticated air defense systems on its side of the border in recent times. Mid-April this year, while India and China were still in talks to resolve their border standoff, the PLA deployed its most advanced, the HQ-9 system along the border.

Analysts had then highlighted how this weapon could pose a threat to Indian helicopters and aircraft operating in the region, as previously reported by the Eurasian Times. China has also posted reserve troops, battle tanks and carried out annual military exercises in the strategic depth areas.

BrahMos — A Deadly Weapon

The BrahMos is a medium-range ramjet supersonic cruise missile that can be launched from land, air, sea, and undersea platforms. It is based on Russian cruise missile technologies such as the P-800 Oniks.

The missile is built by BrahMos Aerospace, an India-Russia joint venture. BrahMos is a blend of two names — India's Brahmaputra River and Russia's Moskva.

The BrahMos has supersonic speeds of Mach 2.0-2.8, depending on the cruising altitude and a range of more than 200km. The speed not only makes it harder to intercept, but it also gives the missile more strike force. The BrahMos boasts some stealth technology that reduces its visibility to radar.

It has an inertial navigation system (INS) for targeting ships and an INS/GPS for targeting land targets. Active or passive radar is also used to provide terminal guidance, according to Missile Threat.

In September last year, India had test-fired a new version called BrahMos supersonic cruise missile with a range of around 400 km, almost a 100km increase from the original one. However, the speed has been retained at Mach 2.8, almost 3 times the speed of sound.

This new variant might also be deployed along the border once it is commissioned to service.

https://eurasiantimes.com/alarm-bells-in-china-as-indian-army-deploys-brahmos-missile/

ENTER 21st.com

Tue, 16 Nov 2021

India engaged in providing regional security and creating market

By Sandeep khamu

To establish itself as a key regional security provider in the Indo-Pacific region and build credibility as a defense exporter, India has leveraged its ambitious BrahMos project. The state-of-the-art and powerful capabilities of BrahMos not only empower the Indian Army but also make it a highly desired product for other countries. India has set a target of defense exports of USD 5 billion by 2025. With this, India's status as a regional power will increase. Vietnam, Philippines, Indonesia, Singapore, United Arab Emirates, Argentina, Brazil and South Africa have shown interest in purchasing this missile system. In recent times, defense agreements have been signed regarding the BrahMos system of these days. Such agreements are to be signed with many more countries in the coming days.

The research and development of the BrahMos cruise missile is carried out by BrahMos Aerospace Limited, a joint venture between Defense Research and Research Organization (DRDO) of India and NPO Mashinostroyenia (NPOM) of Russia. This is the first supersonic cruise missile, which is used by the Indian Army. It is capable of striking at a speed of Mach 2.8 (about three times the speed of sound). Its range is at least 290 km. The capability to strike at this velocity means that the BrahMos will not be caught by any air defense system equipped with surface-to-air missiles, while it (BrahMos) has advanced fighters like China's J20 (whose speed is 2.0. Mac) is easy to kill.

There are plans to increase the missile's speed and range in the next versions. Its speed is equal to or more than Mach 5.0 and the target has been set to make the range 1500 km. Naval and Army versions of BrahMos are already in service. It was inducted into the Indian Navy in 2005 and the Army in 2007. This was followed by a successful trial run of the air-to-air version in November 2017. The test was conducted by the Indian Air Force with a Sukhoi-30 MKI fighter aircraft.

India has explored markets for this missile in Vietnam, Philippines, Indonesia, Singapore, United Arab Emirates, Argentina, Brazil and South Africa. With the Philippines becoming the first country to import BrahMos, broad strategic consequences are being anticipated in the Indo-Pacific region. The Philippines has an ongoing territorial conflict with China in the South China Sea. This will act as a deterrent to Beijing's aggressive approach. In fact, this is the reason why China has been warning ASEAN countries against buying security equipment like BrahMos. For this reason, India feels that countries that are feeling challenged by China can come forward to include BrahMos in their arsenal.

Along with becoming self-reliant in defense manufacturing, India is establishing itself as an important defense exporter. The major obstacle in this path is the US Sanctions Act ie CAATSA. It was given the form of law in 2017. Under this, there is a provision to prohibit those persons and entities who carry out a substantive transaction with a listed entity. So far, Turkey and China have been punished under CAATSA for buying the S-400 Triumph air defense system from Russia.

NPOM is a listed Russian company holding 49.5 per cent stake in the Indian BrahMos Aerospace Limited. This company provides 65 per cent of the equipment (including ramjet engines and radars) used in BrahMos. In such a situation, the export of this missile system may face restrictions. America is an important defense partner of India. The Ministry of External Affairs and

Defense are continuing talks with the US through various forums on the purchase of S-400 by India, production under license of AK 203 assault rifle, besides export of BrahMos. India is trying to get the CAATSA exemption under.

price and power

The purchase of a regiment of BrahMos costs about $ 275 million, or about Rs 2000 crore. A regiment consists of a mobile command post, four missile launchers, several missile carriers and 90 missiles. India has offered loans of $ 500 million and $ 100 million to Vietnam and the Philippines respectively. On the other hand, the Philippines is looking to buy a smaller quantity of BrahMos (only one battery, consisting of three missile launchers and 2-3 missiles). India is looking to market its other domestic defense products like Akash air defense system, air-to-air missile Astra, HAL's Dhruv helicopter for export.

https://enter21st.com/india-engaged-in-providing-regional-security-and-creating-market/

TIMESNOWNEWS.COM

Tue, 16 Nov 2021

Indian Air Force's LCA Tejas to get facelift with French HAMMER missiles – Details

The capability enhancement of the indigenous LCA Tejas fighter aircraft has been done using the 'emergency procurement power' granted by the Centre to defence forces.

KEY HIGHLIGHTS

- ***HAMMER (Highly Agile Modular Munition Extended Range) is a medium-range air-to-ground missile***
- ***It will help the LCA Tejas take out ground targets and hardened bunkers at stand-off ranges of over 70 kms***
- ***The LCA Tejas is far more superior to the JF-17 fighter jet, the combat aircraft jointly manufactured by Pakistan and China***

New Delhi: Furthering India's defence capabilities in line with Prime Minister Narendra Modi's vision for an 'Atmanirbhar Bharat', the Indian Air Force has placed orders for French-made HAMMER missiles that would further bolster the capabilities of the indigenous Light Combat Aircraft (LCA) Tejas.

The new installation will help the fighter aircraft take out ground targets and hardened bunkers at stand-off ranges of over 70 kilometres.

The development comes at a time when India is embroiled in a fierce military stand-off with China along the Line of Actual Control (LAC).

The capability enhancement of the LCA Tejas fighter jet has been done using the 'emergency procurement power' granted by the central government to defence forces.

"The HAMMER missiles are in the process of being integrated with the LCA Tejas and it will significantly enhance its capability to take out hardened targets from stand-off distances," government sources told news agency *ANI*.

The IAF acquired the first consignment of the HAMMER missiles for the Rafale fighter jets, also from France, when the aircraft started getting delivered to India. The Rafale is the most advanced combat aircraft in the illustrious Indian Air Force fleet.

France had agreed to supply the missiles for the Rafales at a short notice last year due in view of the heightened Chinese aggression along the LAC.

HAMMER (Highly Agile Modular Munition Extended Range) is a medium-range air-to-ground missile that was initially designed and manufactured for the French Air Force and Navy.

"The state-of-the-art weapon will give India the capability to take out any bunkers or hardened shelters in any type of terrain including mountainous locations such as Eastern Ladakh," the sources added.

Indian defence forces have comprehensively utilised the emergency procurement powers to equip themselves with the necessary arsenal to battle any aggression by its adversaries, both along the LAC and the Line of Control shared with Pakistan.

The IAF has already operationalised two LCA Tejas squadrons under the initial and final operational clearances, while the 83 Mark 1As will likely be delivered in the next couple of years.

LCA Tejas is designed by the Aeronautical Development Agency in collaboration with the Aircraft Research and Design Centre of India's Hindustan Aeronautics Limited.

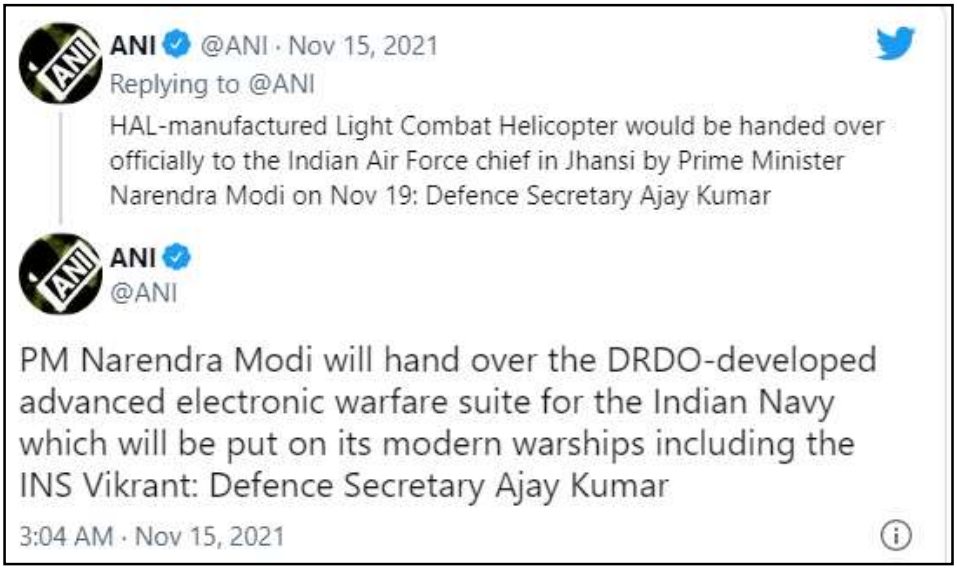
The Indian Air Force is also eyeing the LCA Mark 2 and the AMCA that are being developed by the Defence Research and Development Organisation.

The LCA Tejas is far more superior to the JF-17 fighter jet, the combat aircraft jointly manufactured by Pakistan and China.

Now, with the addition of HAMMER, the Indian fighter jet will surpass its adversaries' arsenal by a huge margin.

https://www.timesnownews.com/india/article/indian-air-force-lca-tejas-gets-facelift-with-french-hammer-missiles-details/832328

DRDO on Twitter



Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Mon, 15 Nov 2021 1:15PM

Raksha Mantri unveils plaque to rename Institute for Defence Studies & Analyses after late Manohar Parrikar

Remembers the former Defence Minister for his thoughtful leadership during 2016 counter-terror strikes & implementation of 'One Rank One Pension' scheme

Shri Rajnath Singh urges MP-IDSA to come up with new ideas in research & policy making and contribute towards nation building

Key Highlights of RM's speech:

- ***Parrikar ji's insistence on indigenisation & efforts for politico-military synergy made him an invaluable asset***
- ***MP-IDSA is one of the best think-tanks in the field of defence, national security & international relations***
- ***Need to stay more alert amidst fast-changing global security scenario and threats like COVID-19***
- ***The institute can provide a new direction to the country's defence and security***

Raksha Mantri Shri Rajnath Singh unveiled a plaque at the Institute for Defence Studies and Analyses in New Delhi on November 15, 2021 to rename the institute after former Defence Minister late Manohar Parrikar. The renaming as Manohar Parrikar Institute for Defence Studies and Analyses (MP-IDSA) by the Raksha Mantri, who is the President of the Institute, follows the unanimous decision by the general body earlier this year to effect the change in the memory of the former Defence Minister. The renaming coincided with the 57th Foundation Day of the Institute that is celebrated on 11th November every year.

Paying rich tributes to the former Defence Minister, the Raksha Mantri, in his address, remembered late Manohar Parrikar who, during his time as Defence Minister, had focussed on promoting the work of the institute. Recalling his long association with him, Shri Rajnath Singh said, Parrikar ji had a deep understanding of matters related to defence and his insistence on indigenisation and efforts for politico-military synergy made him an invaluable asset. "He was a thoughtful leader for our Armed Forces. His leadership in the 2016 counter-terrorist strikes following the Uri incident and the decision of 'One Rank One Pension' taken in the interest of the Armed forces will be long remembered," he added.

Extending his best wishes to MP-IDSA on its 57th Foundation Day, Shri Rajnath Singh lauded the hard work and determination of the institute which, he said, has emerged as one of the best think-tanks in the field of defence, national security and international relations in the last almost six

decades. He described it as a unique institution, which has brought together the talents in academia & different research areas as well as government departments of many countries. “The ideas that came out of the brainstorming have helped decision makers in dealing with the challenges of the 21st century. This institute has reached people through its large number of publications. It is constantly striving to carry forward its glorious legacy,” he added.

The Raksha Mantri emphasised on the need to stay more alert and vigilant in view of the fast-changing global security scenario and invisible threats like the COVID-19 pandemic. He termed MP-IDSA as an invaluable treasure which can provide a new direction to the defence and security of the country. “All of you are studying from traditional warfare to non-contact and hybrid warfare & other concepts of war. But along with comprehensive national security comes high end technological capability, a population of a diverse skill set and national economic strength,” he said.

Shri Rajnath Singh called upon the institute to contemplate more deeply in areas of national security so that it can also be useful in the overall growth of the nation. He exhorted the institute, especially the scholars, to come up with new ideas in the field of research & policy making and contribute towards building a strong and capable India. He extended all possible support from the Government to achieve this objective.

The Raksha Mantri also inaugurated the 100 KW Grid connected rooftop solar power plant on the occasion. The Solar Power Plant project has been set up under the Ministry of New and Renewable Energy’s scheme for promoting solar roof-top plants on government buildings. Since its inception, the solar plant has successfully saved 1,41,540 units, resulting in a saving of over Rs 14 lakh per annum. Commending the work of the institute towards energy security, he said, the Solar Plant is a testament to the Government’s commitment to promote clean energy for a healthy environment.

Shri Rajnath Singh also inaugurated an Open Air gym at the institute, terming it as an important initiative. He stressed on strengthening the health and immune system, especially during the pandemic. “While the number of vaccinations by the Government has crossed 100 crores, the awareness of our own health by the people will make us jointly victorious in the fight against covid-19. We are fully committed towards public health,” he said. Shri Rajnath Singh appreciated the fact that the project is a product of close coordination between MP-IDSA & a local Army station without any additional financial burden.

The Raksha Mantri also released books authored by the Institute's scholars, covering a wide range of research themes relevant to the country’s defence, security, foreign policy and strategic imperatives.

In his welcome address, Director General MP-IDSA Amb. Sujan R Chinoy thanked Shri Rajnath Singh for his support and guidance in advancing the work of the Institute in defence, security and international relations. He termed the renaming of the institute as a recognition and tribute to Parrikar ji’s immense contribution to the nation as a visionary leader. Other senior officials, scholars and staff of MP-IDSA were also present on the occasion.

https://pib.gov.in/PressReleasePage.aspx?PRID=1771900

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Mon, 15 Nov 2021 1:15PM

रक्षा मंत्री ने स्वर्गीय मनोहर पर्रिकर के नाम पर रक्षा अध्ययन और विश्लेषण संस्थान के नामकरण के लिए पट्टिका का अनावरण किया

पूर्व रक्षा मंत्री को 2016 के दौरान आतंकवाद विरोधी हमलों और 'वन रैंक वन पेंशन' योजना के कार्यान्वयन को लेकर उनके विचारशील नेतृत्व के लिए याद किया

श्री राजनाथ सिंह ने एमपी-आईडीएसए से अनुसंधान और नीति निर्माण में नई अवधारणाएं तैयार करने और राष्ट्र निर्माण में योगदान करने का आग्रह किया

रक्षा मंत्री के भाषण की मुख्य विशेषताएं:

- ***पर्रिकर जी के स्वदेशीकरण पर जोर देने और राजनीतिक-सैन्य तालमेल के प्रयासों ने उन्हें एक अमूल्य संसाधन बना दिया***
- ***एमपी-आईडीएसए रक्षा, राष्ट्रीय सुरक्षा और अंतर्राष्ट्रीय संबंधों के क्षेत्र में सबसे अच्छे थिंक-टैंक में से एक है***
- ***तेजी से बदलते वैश्विक सुरक्षा परिदृश्य और कोविड-19 जैसे खतरों के बीच अधिक सतर्क रहने की आवश्यकता है***
- ***यह संस्थान देश की रक्षा और सुरक्षा को नई दिशा दे सकता है***

रक्षा मंत्री श्री राजनाथ सिंह ने **15** नवंबर, **2021** को नई दिल्ली में रक्षा अध्ययन और विश्लेषण संस्थान में पूर्व रक्षा मंत्री स्वर्गीय मनोहर पर्रिकर के नाम पर संस्थान का नामकरण करने के लिए एक पट्टिका का अनावरण किया। रक्षा मंत्री इस संस्थान के अध्यक्ष भी हैं। इस वर्ष की शुरुआत में आम सभा द्वारा पूर्व रक्षा मंत्री की स्मृति में संस्थान के नाम में परिवर्तन से संबंधित निर्णय के अनुसरण में मनोहर पर्रिकर रक्षा अध्ययन और विश्लेषण संस्थान (एमपी-आईडीएसए) के रूप में इसका नामकरण किया गया है। नामकरण के साथ ही संस्थान का **57**वां स्थापना दिवस मनाया गया जो हर साल **11** नवंबर को मनाया जाता है।

पूर्व रक्षा मंत्री को श्रद्धांजलि अर्पित करते हुए, रक्षा मंत्री ने अपने संबोधन में स्वर्गीय मनोहर पर्रिकर को याद किया, जिन्होंने रक्षा मंत्री के रूप में अपने कार्यकाल में संस्थान के काम को बढ़ावा देने पर ध्यान केंद्रित किया था। उनके साथ अपने लंबे लगाव को याद करते हुए, श्री राजनाथ सिंह ने कहा, पर्रिकर जी को रक्षा से संबंधित मामलों की गहरी समझ थी और स्वदेशीकरण पर उनके आग्रह और राजनीतिक-सैन्य तालमेल के प्रयासों ने उन्हें एक अमूल्य संसाधन बना दिया। "वे हमारे सशस्त्र बलों के लिए एक विचारशील नेता थे। उरी की घटना के बाद **2016** के आतंकवाद विरोधी हमलों में उनके नेतृत्व और सशस्त्र बलों के हित में लिए गए 'वन रैंक वन पेंशन' के फैसले को लंबे समय तक याद किया जाएगा।"

एमपी-आईडीएसए के **57**वें स्थापना दिवस पर शुभकामनाएं देते हुए, श्री राजनाथ सिंह ने संस्थान की कड़ी मेहनत और दृढ़ संकल्प की सराहना की। उन्होंने कहा कि यह संस्थान पिछले लगभग छह दशकों में रक्षा, राष्ट्रीय सुरक्षा और अंतर्राष्ट्रीय संबंध के क्षेत्र में एक अग्रणी थिंक टैंक के रूप में उभरा है। उन्होंने इसे एक अनूठा संस्थान बताया, जिसने अकादमिक और विभिन्न अनुसंधान क्षेत्रों के साथ-साथ कई देशों के सरकारी विभागों में

प्रतिभाओं को एक साथ जोड़ दिया है। उन्होंने कहा, "विचार-मंथन से निकले विचारों ने **21**वीं सदी की चुनौतियों से निपटने में निर्णयकर्ताओं की मदद की है। यह संस्थान अपने बड़ी संख्या में प्रकाशनों के माध्यम से लोगों तक पहुंचा है। यह अपनी गौरवशाली विरासत को आगे बढ़ाने के लिए निरंतर प्रयासरत है।"

रक्षा मंत्री ने तेजी से बदलते वैश्विक सुरक्षा परिदृश्य और कोविड**-19** महामारी जैसे अदृश्य खतरों के मद्देनजर अधिक सतर्क और जागरूक रहने की आवश्यकता पर जोर दिया। उन्होंने एमपी-आईडीएसए को एक अमूल्य खजाना बताया, जो देश की रक्षा और सुरक्षा को एक नई दिशा प्रदान कर सकता है। रक्षा मंत्री ने कहा, "आप सभी पारंपरिक युद्ध से लेकर गैर-संपर्क और हाईब्रिड वारफेयर और युद्ध की अन्य अवधारणाओं का अध्ययन कर रहे हैं। लेकिन व्यापक राष्ट्रीय सुरक्षा तो उच्च तकनीकी क्षमता, विविध कौशल वाली जनसंख्या और राष्ट्रीय आर्थिक ताकत के बल पर संभव होती है। "

श्री राजनाथ सिंह ने संस्थान से राष्ट्रीय सुरक्षा के क्षेत्रों में अधिक गहराई से विचार करने का आह्वान किया, ताकि यह राष्ट्र के समग्र विकास में भी उपयोगी हो सके। उन्होंने संस्थान, विशेष रूप से विद्वानों को अनुसंधान और नीति निर्माण के क्षेत्र में नए विचारों के साथ आने और एक मजबूत तथा सक्षम भारत के निर्माण में योगदान करने का आह्वान किया। उन्होंने कहा कि इस उद्देश्य को प्राप्त करने के लिए सरकार की ओर से हर संभव सहायता प्रदान की जाएगी।

रक्षा मंत्री ने इस अवसर पर **100** किलोवाट ग्रिड से जुड़े रूफटॉप सौर ऊर्जा संयंत्र का भी उद्घाटन किया। नवीन एवं नवीकरणीय ऊर्जा मंत्रालय की योजना के तहत सरकारी भवनों पर सोलर रूफ-टॉप प्लांटों को बढ़ावा देने के लिए सोलर पावर प्लांट प्रोजेक्ट की स्थापना की गई है। अपनी स्थापना के बाद से, सौर संयंत्र ने सफलतापूर्वक **1,41,540** यूनिट बिजली की बचत की है, जिसके परिणामस्वरूप प्रति वर्ष **14** लाख रुपये से अधिक की बचत हुई है। ऊर्जा सुरक्षा की दिशा में संस्थान के काम की सराहना करते हुए उन्होंने कहा कि सौर संयंत्र स्वस्थ पर्यावरण के लिए स्वच्छ ऊर्जा को बढ़ावा देने की सरकार की प्रतिबद्धता का प्रमाण है।

श्री राजनाथ सिंह ने एक महत्वपूर्ण पहल के तहत संस्थान में एक ओपन एयर जिम का भी उद्घाटन किया। उन्होंने खासकर महामारी के दौरान स्वास्थ्य और प्रतिरक्षण प्रणाली को मजबूत करने पर जोर दिया। उन्होंने कहा, "जबकि सरकार द्वारा टीकाकरण की संख्या **100** करोड़ को पार कर गई है, लोगों की अपने स्वास्थ्य के प्रति जागरूकता हमें कोविड**-19** के खिलाफ लड़ाई में संयुक्त रूप से विजयी बनाएगी। हम जन स्वास्थ्य के प्रति पूरी तरह से प्रतिबद्ध हैं। " श्री राजनाथ सिंह ने इस बात की सराहना की कि यह परियोजना बिना किसी अतिरिक्त वित्तीय बोझ के एमपी-आईडीएसए और एक स्थानीय सेना स्टेशन के बीच घनिष्ठ समन्वय का एक उत्पाद है।

रक्षा मंत्री ने संस्थान के विद्वानों द्वारा लिखित पुस्तकों का भी विमोचन किया, जिसमें देश की रक्षा, सुरक्षा, विदेश नीति और सामरिक अनिवार्यताओं के लिए प्रासंगिक अनुसंधान संबंधी विषयों की एक विस्तृत श्रृंखला शामिल है।

अपने स्वागत भाषण में एमपी-आईडीएसए के महानिदेशक श्री सुजान आर. चिनॉय ने रक्षा, सुरक्षा और अंतर्राष्ट्रीय संबंधों में संस्थान के काम को आगे बढ़ाने में समर्थन और मार्गदर्शन के लिए श्री राजनाथ सिंह को धन्यवाद दिया। उन्होंने एक दूरदर्शी नेता के नाम पर संस्थान का नया नामकरण करने को राष्ट्र के लिए पर्रिकर जी के अपार योगदान को मान्यता और श्रद्धांजलि करार दिया। इस अवसर पर एमपी-आईडीएसए के अन्य वरिष्ठ अधिकारी, विद्वान और कर्मचारी भी उपस्थित थे।

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Ministry of Defence

Mon, 15 Nov 2021 5:59PM

Visit of Chief of Defence Staff, General Bipin Rawat, to Nagpur

General Bipin Rawat, Chief of Defence Staff (CDS), visited Defence Establishments in Nagpur. He was briefed on projects undertaken by indigenous private defence manufacturers as part of Atmanirbhar Bharat initiative. He visited Economic Explosives Ltd (EEL), Nagpur and was given an overview on the latest products being developed by the company including Multi-mode hand grenades and various other explosives, missiles and armed drones. He was briefed by the Chairman EEL, Mr SatyanarayanNuwal on various manufacturing facilities.

On his arrival, the CDS was received by Air Marshal Sashiker Choudhary, Air Officer Commanding in Chief (AOC-in-C), Maintenance Command and General Officer Commanding (GOC) Uttar Maharashtra and Gujarat Sub Area, Major General Dinesh Hooda. Subsequent to the EEL visit, the CDS visited the Airforce Maintenance Command at Nagpur and was briefed by Air Marshal Sashiker Choudhary on the role played by the Command to ensure all time serviceability of different kinds of aircrafts and AF equipment.

Later, Major General Dinesh Hooda briefed the CDS on the proactive role played by the formation in Covid-19 mitigation, ex-servicemen welfare and extending relief during humanitarian assistance and disaster relief (HADR) operations. The CDS was later shown the infrastructure development, ecological works and other initiatives undertaken by the formation since its relocation from Mumbai to Nagpur in March 2018.

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पत्र सूचना कार्यालय
भारत सरकार
रक्षा मंत्रालय

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चीफ ऑफ डिफेंस स्टाफ जनरल बिपिन रावत का नागपुर दौरा

चीफ ऑफ डिफेंस स्टाफ (सीडीएस) जनरल बिपिन रावत ने नागपुर में रक्षा प्रतिष्ठानों का दौरा किया। उन्हें आत्मनिर्भर भारत पहल के तहत स्वदेशी निजी रक्षा निर्माताओं द्वारा शुरू की गई परियोजनाओं के बारे में बताया गया। उन्होंने इकोनॉमिक एक्सप्लोसिव्स लिमिटेड (ईईएल), नागपुर का दौरा किया और उन्हें कंपनी द्वारा विकसित किए जा रहे नवीनतम उत्पादों पर एक सिंहावलोकन दिया गया जिसमें मल्टी-मोड हैंड ग्रेनेड और विभिन्न प्रकार के अन्य विस्फोटक, मिसाइल तथा सशस्त्र ड्रोन शामिल हैं। उन्हें ईईएल के अध्यक्ष श्री सत्यनारायण नुवाल ने विभिन्न विनिर्माण सुविधाओं के बारे में जानकारी दी।

सीडीएस के आगमन पर, एयर मार्शल शशिकर चौधरी, एयर ऑफिसर कमांडिंग इन चीफ (एओसी-इन-सी), मेंटेनेंस कमांड और जनरल ऑफिसर कमांडिंग (जीओसी) उत्तर महाराष्ट्र एंड गुजरात सब एरिया, मेजर जनरल दिनेश हुड्डा ने उनका स्वागत किया। ईईएल के दौरे के बाद सीडीएस ने नागपुर में एयरफोर्स मेंटेनेंस कमांड का दौरा किया और एयर मार्शल शशिकर चौधरी ने उन्हें विभिन्न प्रकार के एयरक्राफ्ट तथा वायुसेना के उपकरणों की हर समय उपयुक्तता सुनिश्चित करने के लिए कमांड द्वारा निभाई गई भूमिका के बारे में जानकारी दी।

बाद में मेजर जनरल दिनेश हुड्डा ने सीडीएस को कोविड -19 शमन, पूर्व सैनिकों के कल्याण और मानवीय सहायता तथा आपदा राहत (एचएडीआर) कार्यों के दौरान राहत प्रदान करने में सक्रिय भूमिका के बारे में जानकारी दी। सीडीएस को बाद में मार्च 2018 में मुंबई से नागपुर में स्थानांतरित होने के बाद के फॉर्मेशन के बुनियादी ढांचे के विकास, पारिस्थितिक कार्यों और गठन द्वारा की गई अन्य पहलों को दिखाया गया।

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Press Information Bureau
Government of India

Ministry of Defence

Mon, 15 Nov 2021 6:01PM

Indian Navy participates in India, Singapore and Thailand Trilateral Maritime Exercise 'SITMEX'

Indian Naval Ship (INS) *Karmuk*, an indigenously built Missile Corvette is participating in the 3rd edition of India, Singapore and Thailand Trilateral Maritime Exercise SITMEX – 21, from 15 to 16 Nov 21 in Andaman Sea. Republic of Singapore Navy (RSN) is being represented by RSS *Tenacious*,a Formidable Class Frigate and Royal Thai Navy (RTN) by His Majesty's Thailand Ship (HTMS) *Thayanchon*, a Khamrosin Class Anti-submarine Patrol Craft.

SITMEX is being conducted annually since 2019 with an aim to enhance mutual inter-operability and imbibing best practices between Indian Navy (*IN*), RSN and RTN. The maiden edition of SITMEX was hosted by *IN* off Port Blair in September 2019. RSN hosted the second edition of the exercise in November 2020. The 2021 edition of the exercise is being hosted by RTN in Andaman Sea.

The exercise is being conducted as a 'non-contact, at sea only' exercise in view of COVID-19 restrictions and highlights growing synergy, coordination and cooperation in the maritime domain between the three friendly navies. The two days of maritime drills will witness the three navies engaged in a various tactical exercises including naval manoeuvres and surface warfare drills.

SITMEX-21 will fortify the long-standing bond of friendship and further enhance the cooperation between the participating navies towards augmenting the overall maritime security in the region.

https://pib.gov.in/PressReleasePage.aspx?PRID=1772038

पत्र सूचना कार्यालय
भारत सरकार
रक्षा मंत्रालय

Mon, 15 Nov 2021 6:01PM

भारतीय नौसेना ने भारत, सिंगापुर और थाईलैंड त्रिपक्षीय समुद्री अभ्यास 'सिटमेक्स' में भाग लिया

भारतीय नौसेना पोत (आईएनएस) *कर्मुक*, जो एक स्वदेश निर्मित मिसाइल कार्वेट है, अंडमान सागर में दिनांक **15** से **16** नवंबर **2021** तक भारत, सिंगापुर और थाईलैंड त्रिपक्षीय समुद्री अभ्यास सिटमेक्स **- 21** के तीसरे संस्करण में भाग ले रहा है। रिपब्लिक ऑफ सिंगापुर नेवी (आरएसएस) का प्रतिनिधित्व आरएसएस *टीनाशियस*, जो एक फॉर्मिडेबल क्लास फ्रिगेट और रॉयल थाई नेवी (आरटीएन) हिज मैजेस्टी थाईलैंड शिप (एचटीएमएस) थायनचोन द्वारा किया जा रहा है, जो एक *खामरोसिन* क्लास एंटी-सबमरीन पैट्रोल क्राफ्ट है।

भारतीय नौसेना, आरएसएन और आरटीएन के बीच आपसी अंतर-संचालन को बढ़ाने और सर्वोत्तम प्रथाओं को आत्मसात करने के उद्देश्य से **2019** से सिटमेक्स प्रतिवर्ष आयोजित किया जा रहा है। सिटमेक्स के पहले संस्करण की मेजबानी सितंबर **2019** में पोर्ट ब्लेयर में भारतीय नौसेना द्वारा की गई थी। आरएसएस ने नवंबर **2020** में अभ्यास के दूसरे संस्करण की मेजबानी की। अभ्यास के **2021** संस्करण की मेजबानी आरटीएन द्वारा अंडमान सागर में की जा रही है।

यह अभ्यास कोविड**-19** प्रतिबंधों के मद्देनजर 'नॉन कॉन्टैक्ट, केवल समुद्र में' अभ्यास के रूप में आयोजित किया जा रहा है और तीन मित्र नौसेनाओं के बीच समुद्री क्षेत्र में बढ़ते तालमेल, समन्वय और सहयोग पर प्रकाश डाला गया है। दो दिनों के समुद्री अभ्यास के दौरान तीन नौसेनाएं अनेक प्रकार के युद्धाभ्यास और सरफेस वारफेयर समेत विभिन्न सामरिक अभ्यासों में शामिल होंगी।

सिटमेक्स**-21** मित्रता के लंबे समय से चले आ रहे रिश्ते को मजबूत करेगा और क्षेत्र में समग्र समुद्री सुरक्षा को बढ़ाने की दिशा में भाग लेने वाली नौसेनाओं के बीच सहयोग को और बढ़ाएगा।

https://pib.gov.in/PressReleasePage.aspx?PRID=1772087

Hindustan Times

Tue, 16 Nov 2021

PM Modi to hand over light combat helicopter to IAF on November 19

The LCH has been designed and developed by state-run plane-maker Hindustan Aeronautics Limited (HAL)

Prime Minister Narendra Modi will handover locally produced military hardware, including the light combat helicopter (LCH), unmanned aerial vehicles (UAVs) and electronic warfare systems for warships, to the armed forces on November 19 at a function in Jhansi as part of celebrations to mark the 75th year of India's independence, highlighting the government's focus on achieving self-reliance in the defence sector.

File photo: Prime Minister Narendra Modi. (ANI)

PM Modi will hand over the LCH, designed and developed by state-run plane-maker Hindustan Aeronautics Limited (HAL), to Indian Air Force chief Air Chief Marshal Vivek Ram Chaudhari, and UAVs manufactured by local startups to army chief General MM Naravane, the defence ministry said in a statement on Monday. Defence minister Rajnath Singh will inaugurate the three-day event on November 17.

"LCH incorporates advanced technologies and stealth features and is designed to carry out roles such as destruction of enemy air defence, counter-insurgency, search and rescue and anti-tank operations. It is the only attack helicopter in the world which can land and take-off at an altitude of 5,000 m with a considerable load of weapons and fuel," the statement said.

The HAL has not yet got the LCH contract from the defence ministry for supplying the helicopters to the IAF and army, but that has not stopped it from manufacturing the helicopters and delivering them to the two services. Its handing over to IAF indicates the contract will be signed soon.

The HAL is awaiting a contract for 15 limited series production (LSP) helicopters and expects follow-on orders as the IAF and the army have a combined projected requirement of 160 LCHs. Of the initial 15 LSP helicopters approved for purchase by the defence acquisition council (DAC) – India's apex defence procurement body – 10 are for IAF and five for the army.

Modern Indian warships, including the indigenous aircraft carrier Vikrant, will be equipped with the indigenous electronic warfare suite, marking a big step towards Atmanirbhar Bharat, the ministry said.

On November 19, the PM will also lay the foundation stone of a new ₹400-crore facility of Bharat Dynamics Ltd in the Jhansi node of the UP defence industrial corridor where the public sector firm will manufacture propulsion systems for anti-tank guided missiles.

The facility is expected to provide direct employment to 150 people and indirect employment to 500 people.

The PM's participation in the event and his handing over the locally developed military equipment to the armed forces is a message to the world and the country that "we have taken giant steps towards self-reliance in defence," said former Northern Army commander Lieutenant General BS Jaswal (retd).

The government is encouraging self-reliance in the defence manufacturing sector through a slew of policy decisions, including increasing foreign direct investment (FDI) limit from 49% to 74%, notifying 209 defence items that cannot be imported and creating a separate budget for buying locally-made military hardware.

India has signed contracts and cleared projects worth almost ₹62,000 crore in the last two months to boost military capability with locally produced weapons and systems including transport planes, tanks, helicopters, airborne early warning systems and counter-drone weapons.

India has set aside ₹70,221 crore this year for domestic defence procurement, accounting for 63% of the military's capital budget. Last year, the ministry spent over ₹51,000 crore, or 58% of the capital budget, on domestic purchases.

The line-up of events in Jhansi includes the PM dedicating to the country 100 new Sainik Schools that will be set up across India over the next two years. He will also launch the National Cadets Corps (NCC) alumni association. The PM, a former NCC cadet, will be inducted as the first member of the association, the ministry said.

https://www.hindustantimes.com/india-news/pm-modi-to-hand-over-light-combat-helicopter-to-iaf-on-november-19-101636987763657.html

The Indian EXPRESS

Tue, 16 Nov 2021

Collision avoidance manoeuvre performed for Chandrayaan-2: ISRO

According to ISRO, a "very close conjunction" between Chandrayaan-2 orbiter and LRO of NASA was expected to occur on October 20 at 11.15 am Indian Standard Time near the lunar north pole

Ahmedabad:The Indian Space Research Organisation (ISRO) said on Monday that it performed a "collision avoidance manoeuvre" (CAM) on October 18 to avoid a "critically close approach" of the orbiter of its moon mission Chandrayaan-2 and NASA's robotic spacecraft of Lunar Reconnaissance Orbiter (LRO).

Chandrayaan-2 lifts off onboard GSLV Mk III-M1 launch vehicle from Satish Dhawan Space Center at Sriharikota. (ISRO)

The official announcement on the ISRO website on Monday stated that following a discussion with Jet Propulsion Laboratory (JPL, which is the robotic exploration division of NASA) and NASA, it was "deemed that the situation warranted a CAM to mitigate the close approach risk, and it was mutually agreed that CH2O (Chandrayaan-2 orbiter) would undergo the CAM".

According to ISRO, a "very close conjunction" between Chandrayaan-2 orbiter and LRO of NASA was expected to occur on October 20 at 11.15 am Indian Standard Time near the lunar north pole. A conjunction is an event in which two satellites or spacecrafts or a satellite and a piece of debris are estimated to pass near each other.

In the week ahead of the expected conjunction, "analyses by both ISRO and JPL/NASA consistently showed that the radial separation between the two spacecraft would be less than 100 metre and the closest approach distance would be only about 3 km".

The CAM, which involves orbital correction, was designed to ensure a "sufficiently large radial separation at the closest conjunction between the two spacecraft" and was executed normally on October 18, with further post-manoeuvre analysis showing that there would be no further close conjunctions with LRO in the near future, according to ISRO.

The ISRO stated that "this is the first time such a critically close conjunction was experienced for a space exploration mission of ISRO which necessitated an evasive manoeuvre".

https://indianexpress.com/article/cities/ahmedabad/collision-avoidance-manoeuvre-performed-for-chandrayaan-2-isro-7624594/

PHYS.ORG

Tue, 16 Nov 2021

Nonlinear fundamental research of novel photonic devices with thickness control

Fiber lasers are widely used in the fields of optical communications, medical surgery, laser processing and lidar due to their advantages of good beam quality, compact structure, low cost and good compatibility. Therefore, they are considered to be one of the lasers with broad application prospects. On the other hand, with the further development of nanomaterial technology, two-dimensional materials with strong nonlinearity and fast relaxation process have gradually attracted widespread attention. So far, some two-dimensional materials have been successfully applied to fiber lasers as saturable absorbers and achieved ultrashort pulses.

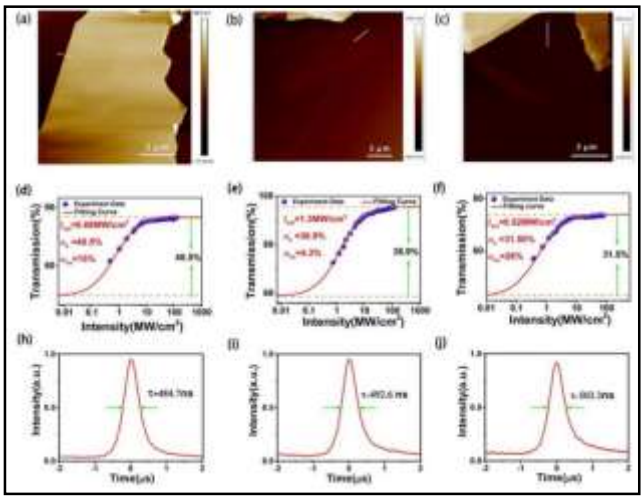

Figure 1. The influence of SnS2 material thickness change on the nonlinearity of the device and the performance of the corresponding laser. Credit: Compuscript Ltd

However, the results show that the photoelectric properties of most two-dimensional materials are sensitive to the change of thickness. Materials of the same type with different thickness often show great differences in the band gap structure and carrier relaxation. Since the saturable absorber based on two-dimensional materials is an important photonic device that controls the output in lasers, the research and effective control of the properties of the saturable absorber inevitably become a breakthrough in the development of high-performance lasers. At present, most of the current hotspots focus on the preparation of materials and the development of new materials. Research on the thickness-related optical nonlinearity of two-dimensional materials is lacking. Therefore, it has important research significance to realize the nonlinear control of saturable absorber by changing the thickness.

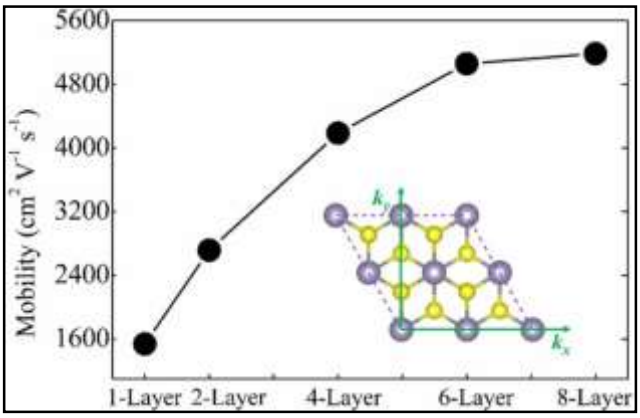

Figure 2. The relationship between electron mobility and the number of SnS2 layers. Credit: Compuscript Ltd

In response to these problems, the research group of Professor Wenjun Liu from Beijing University of Posts and Telecommunications, cooperated with Professor Zhiyi Wei from the Institute of Physics of the Chinese Academy of Sciences and Professor Wei Guo from Beijing University of Technology, to systematically study the nonlinear control of the saturable absorber and the influence on the corresponding laser from both theoretical and experimental aspects. The researchers selected SnS_2 material to prepare the saturable absorbers and have obtained photonic devices with different modulation depth by adjusting their thickness. Further analysis of the influence of different SnS_2 saturable absorbers on the stability, output power, starting threshold and pulse duration of the laser has been made by building the Q-switched lasers based on different SnS_2 saturable absorbers. In addition, the authors have theoretically calculated the influence of material thickness changes on its carrier mobility and band gap structure and have revealed the inherent reasons for the nonlinearity and absorption of saturable absorbers that vary with material thickness.

Relevant research can not only effectively realize the nonlinear control of saturable absorber, offer technical reference for the subsequent engineering design of new nonlinear photonic devices, but also provide the possibility for the development of high-performance fiber lasers. It is of great significance to further develop the industrial applications of photonic devices and lasers.

More information: Mengli Liu et al, Optical properties and applications of SnS_2 SAs with different thickness, *Opto-Electronic Advances* (2021). DOI: 10.29026/oea.2021.200029

https://phys.org/news/2021-11-nonlinear-fundamental-photonic-devices-thickness.html

PHYS.ORG

Tue, 16 Nov 2021

Nanomaterial 'aerographene' used to create extremely powerful pumps

An international research team led by Kiel has developed a new method for the generation of controllable electrical explosions. Theoretically, it only takes 450 grams of this material to lift an elephant: "Aerographene" owes this ability to its unique structure at the nano level. Visually similar to a black foam, it actually consists of a finely-structured tubular network based on graphene with numerous cavities. This makes it extremely stable, conductive and almost as lightweight as air. An international research team led by materials scientists from Kiel University (CAU) has now taken a major step toward practical applications. They have succeeded in repeatedly heating and cooling aerograph and the air contained inside to very high temperatures in an extremely short period of time. This enables extremely powerful pumps, compressed air applications or sterilizing air filters in miniature. The article appeared as the cover story in the current issue of the renowned scientific journal *Materials Today*.

The so-called aeromaterial "aerographene" looks like a black foam, but consists of 99.9% air and can withstand extremely high loads. Credit: Julia Siekmann, Uni Kiel

"When we first introduced these materials, they were the lightest class of materials in the world to date, with a density of just 0.2 milligrams per cubic centimeter. Because that's practically air, we called them 'aeromaterials'", recalls Rainer Adelung. The professor for Functional Nanomaterials at CAU had developed the materials, which were first presented in 2012, together with colleagues from Hamburg University of Technology. The fascinating properties of aeromaterials generated worldwide interest and have been intensively researched since then, for example in the major European research initiative "Graphene Flagship."

This new study provides a contribution to how aeromaterials could get from basic research to application. The material scientists from Kiel, together with colleagues from Technische Universität Dresden, University of Southern Denmark, University of Trento, Queen Mary University of London, has discovered further properties that enable innovations in pneumatics, robotics or air filter technology.

'Aerographene' can be heated up and cooled down very fast

"In our experiments, we have found that Aeromaterials made from graphene and other conductive nanomaterials, can be electrically heated extremely quickly with up to several hundred degrees per millisecond due to their low density," explains Dr. Fabian Schütt from CAU, who led and conducted the experiments together with Dr. Florian Rasch. To do so, the materials scientists used the "aerographene" aeromaterial, which consists of just a few layers of carbon atoms and

99.9% air. When heated, this air contained inside the material is also heated extremely quickly and expands. In the case of very rapid heating, there is an expansion in volume and one speaks of an "explosion." "This means we are now able to use aerographene to start small controllable and repeatable explosions that do not require a chemical reaction," says Schütt, summarizing their findings.

That's because almost as quickly as it heats up, aerographene cools down again as soon as the power supply is switched off. "It can hardly store any heat due to its extremely low heat capacity. Via its network structure it releases it very quickly back into the containing air," Schütt continues. The rapid heating and cooling of the material enables the researchers to start several explosions per second, one after the other. "This gives us extremely powerful compressed air at the push of a button, without the compressors and gas supplies that are otherwise required," Adelung explains.

Material has already withstood more than 100,000 cycles—patent pending

The scientists use this effect to develop new pumps that can be specifically adjusted as well as high-performance actuators in miniature format. "If you place the aeromaterial in a pressure cylinder and heat it with electricity, the generated air blast can be used to move objects up and down in a targeted manner and several times per second," explains Rasch, who recently completed his doctoral thesis on this subject. In their experiments, the two first authors, Schütt and Rasch, were able to show that even a small amount of aerographene objects that are many times heavier can be moved. For example, 10 milligrams of aerographene were enough to lift a two-kilogram weight in just a few milliseconds. So the actuators developed with aerographene have high power densities while maintaining large volume changes.

"In contrast to chemical reactions, these small electrical explosions can be controlled very specifically and also are very clean. By changing the duration and strength of the current supply we can precisely control the frequency and strength of the air blasts," says Rasch. Thanks to the extreme conductivity of aeromaterials, they need only a small amount of electricity for this. In the experiments carried out in Kiel, the material has withstood 100,000 cycles so far, and a patent has already been filed.

Can also be used as a self-cleaning air filter against bacteria

As one example for applications, Adelung's research group is currently developing new air filter materials and systems based on aerographene in cooperation with the German aviation supplier Lufthansa Technik and funded by the Graphene Flagship. "Air currents can be guided very well through the open network structure of the material and can be heated strongly for a short time. In this way, bacteria and viruses, for example, can be filtered out of the air and killed," Adelung said. "This could allow these filter systems to function self-cleaning and work without expensive maintenance in the future."

More information: *Fabian Schütt et al, Electrically powered repeatable air explosions using microtubular graphene assemblies, Materials Today (2021).* *DOI: 10.1016/j.mattod.2021.03.010*

Journal information: *Materials Today*

https://phys.org/news/2021-11-nanomaterial-aerographene-extremely-powerful.html

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Tue, 16 Nov 2021

Researchers propose new compact 2D serpentine optical phased array

By Zhang Nannan

Chip-scale silicon photonics optical phased array (OPA) is widely used in free-space communication. However, due to the limitation of optical device design and manufacture, the distance between antennas in two-dimensional (2D) OPA is usually much larger than the optical wavelength. Practical applications require reducing antenna distance to eliminate higher-order interference and minimize sidelobe.

3D schematic drawing of the presented serpentine OPA design. Grating antennas, phase shifters, and the additional lengths between two serpentine sections are circled in green, white, and black, respectively. Credit: XIOPM

In a typical 2D OPA design, each antenna unit consists of an antenna, a phase shifter and a directional coupler. In the two-stage branching architecture of directional couplers, the serial configuration usually limits the antenna distance and causes losses. This branching architecture cannot simultaneously maximize optical power efficiency and reduce the distance between antennas.

In order to eliminate the use of long, directional couplers and the serial configuration trade-off, researchers led by Prof. Zhang Wenfu from the Xi'an Institute of Optics and Precision Mechanics (XIOPM) of the Chinese Academy of Sciences (CAS) presented a serpentine OPA design. Results were published in *Applied Optics.*

In their design, the researchers used a straight grating antenna, which allowed a small amount of light to scatter out of the plane at the designed angle, while the rest could also pass through. The grating was made of silicon waveguides coated with silicon dioxide.

Additionally, a silver layer was added at the bottom of the grating to improve the upward diffraction efficiency. The phase shifter was designed as an S-shaped bender that was placed between two adjacent grating antennas connecting to the waveguide and has an analog transmittance of 99.9%.

Raster antennas and phase shifters were arranged tightly in a multi-layer snake to reduce the overall size. They used different bending radii for the nine phase shifters in the serpentine section, deliberately introducing non-periodicity to reduce higher-order interference.

The simulation results show that the 9 x 9 antenna array achieves 98.4% light work efficiency over 66 μm length in both x and y directions. This results in a 30% reduction in linear size compared to a 9×9 branch design with the same power efficiency. The serpentine design can be optimized by adjusting the grating tooth height and other antenna numbers or optical power efficiency.

They inspected the effects of antenna output nonuniformity, and the results show that high-performance antenna arrays have considerable design space. They also studied the problem of antenna distance shortening in serpentine design. The results show that a 2D OPA design with a moderate number of antennas has significant benefits for antenna range reduction.

This design can significantly reduce the distance between antennas while maintaining high optical power efficiency. It is instructive to the design and application of 2D OPA.

More information: Yangming Ren et al, Compact 2D serpentine optical phased array, *Applied Optics* (2021). DOI: 10.1364/AO.431942

https://phys.org/news/2021-11-compact-2d-serpentine-optical-phased.html

Yale News

Tue, 16 Nov 2021

Yale researchers discover that novel antiviral effectively targets numerous COVID variants

A Yale-designed RNA-based antiviral recruits the innate immune system in the body's fight against COVID-19, indiscriminately fighting many variants of the virus and bringing new hope to immunocompromised patients

By Valentina Simon

A new Yale study found that SLR14, a short double-stranded antiviral RNA molecule, can stimulate the body's defenses and protect mice against all known variants of the COVID-19 coronavirus. The research could offer a new treatment for immunocompromised patients and provide an inexpensive antiviral to countries with limited access to vaccines.

Under the leadership of Akiko Iwasaki, professor of immunology at the Yale School of Medicine, a team of researchers discovered that an easy-to-manufacture RNA antiviral therapeutic can activate the body's innate immune response. The innate immune response — in which interferons, a group of proteins, target universal viral markers — is the body's first response to infection. Studies have shown that COVID-19 patients who produce high levels of interferons have better outcomes than patients who produce lower levels of interferons during the early days of infection.

"Innate immunity works across all viruses," Iwasaki said. "It doesn't even matter if it is an RNA or a DNA virus, as long as you initiate interferon response. Interferon response triggers thousands of genes to combat a viral infection and so it is indiscriminate of the type of virus you are dealing with and it is also very quick. Adaptive immune responses take a couple weeks to develop. This innate immune response occurs within minutes to hours."

The scientists' research was published on Nov. 10 in the Journal of Experimental Medicine. They found the treatment could fight a variety of COVID-19 variants infecting mice — including the Alpha, Beta, Gamma and Iota variants — as well as the Delta variant, which is currently the dominant variant in the U.S.

"In the context of continued emergence of variants, we really want an antiviral strategy that would confer broadly targeted protective immunity against a wide panel of viral variants and that is the motivation for testing SLR14 against SARS CoV-2 variants, and really to our satisfaction SLR14 was able to hold its efficacy, especially with the Delta variant which has already taken the entire world," said Tianyang Mao '22 GRD, a graduate student in Iwasaki's lab and first author on the recently published paper.

As COVID-19 variants continue to mutate, the development of non-specific therapeutics is crucial, according to Iwasaki.

Additionally, current preventative treatments, such as vaccines, require the ability to form antibodies against specific COVID-19 proteins through a complex collaboration of T- and B-cells. Immunocompromised patients are unable to create sufficient levels of these cells that produce antibodies and kill viruses. The innate immune system provides an alternative treatment opportunity.

The researchers found the therapy protected mice against severe diseases and death and eradicated the virus from mice with chronic infections.

“SLR14 could potentially be beneficial in patients that are chronically infected with SARS CoV-2,” Mao said. “Mice that are chronically infected with SARS CoV-2, those that are deficient in T- and B-cells, also derive benefit from SLR14. SLR14 induces near sterilizing immunity in these mice, meaning that they completely clear the infection from their respiratory tract.”

In practice, SLR14 could also be used as a preventative measure or early post-exposure medication, according to Benjamin Goldman-Israelow, ABIM physician-scientist research pathway resident at the Yale School of Medicine and second author on the study. The antiviral therapeutic could therefore be particularly valuable for healthcare workers entering areas with a known high viral load.

By activating the interferon alarm system, SLR14 provides an early treatment method for COVID-19, enabling the body to attack the virus before it takes hold. An unusual characteristic of COVID-19 is its ability to enter the body without alerting the innate immune system; the treatment helps overcome this aspect of the virus.

“We have told the immune system, ‘Hey there’s a virus here, go after it!’” Goldman-Israelow said. “Whereas during natural infection, the virus stays silent and avoids being recognized.”

As of Nov. 11, there have been 810,327 cases of the Delta variant in the United States.

https://yaledailynews.com/blog/2021/11/15/yale-researchers-develop-novel-antiviral-that-effectively-targets-numerous-covid-variants/