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CONTENTS

S. No.	TITLE	Page No.
Defence News		1-24
Defence Strategic: National/International		1-24
1.	Explained: Lockheed Martin Delivers Pod-Sized Laser Energy Weapon to USAF; What Is It? <i>The Indian Express</i>	1
2.	India Intensifies Fighter Operations as China Raises Temperature Near Ladakh <i>The Economic Times</i>	2
3.	Washed Away Strategic Bridge at India-China Border Reconstructed: Report <i>NDTV</i>	3
4.	Indian Army Gets Ready for Future Wars! To Adopt AI for Crucial Ops <i>Financial Express</i>	4
5.	ब्राजील के नौसेना प्रतिनिधिमंडल ने पश्चिमी नौसेना कमान का दौरा किया <i>Press Information Bureau</i>	5
6.	Brazilian Navy Delegation Visits Western Naval Command <i>Press Information Bureau</i>	6
7.	Pakistan Targeting Indian Army Officers Through Whatsapp Malware <i>Times Now</i>	6
8.	INS Vikrant Successfully Completes Final Phase of Trials: How This Boosts Indian Navy's Strategic Influence in Countering China <i>Times Now</i>	7
9.	All Systems Go; The Significance of INS Vikrant, The First Made-In-India Aircraft Carrier <i>Indian Defence News</i>	8
10.	Around 100 MSMEs Involved in Manufacturing of Aircraft Carrier INS Vikrant <i>Indian Defence News</i>	10
11.	इन भारतीय प्रतिष्ठानों पर 200 गुना बढ़े चीनी साइबर हमले, सामने आए चौकाने वाले आंकड़े <i>Agniban</i>	11
12.	Since Galwan Border Flare-Up, China has Installed Massive Military Infrastructure, Says the Warzone <i>Indian Defence News</i>	13
13.	Chennai-Based Big Bang Boom Solutions will Deliver its Anti-Drone Defence System (ADDS) to the IAF <i>Indian Defence News</i>	15
14.	Indian Security Forces to Test IDR's Nano UAV <i>Indian Defence News</i>	15
15.	Kolkata-Based Saif Seas has Delivered '50 Pieces' of its "Remote-Operated Buoy" to the Indian Navy <i>Indian Defence News</i>	16
16.	Silent Sentry: A Rail-Mounted Robot that will Man the LOC to Identify Infiltration Bids <i>Indian Defence News</i>	16
17.	This Wacky Wireframe Fighter Replica is Used on India's Newest Carrier as Training Aid: US Media <i>Indian Defence News</i>	17
18.	Hawking Defence Offers Solutions to Indian Armed Forces <i>Indian Defence News</i>	20
19.	Endureair Systems Showcases Electric Vibhram UAV <i>Indian Defence News</i>	20
20.	Why India-Israel Cyber Partnership Worries Pakistan & China <i>Indian Defence News</i>	21
21.	China to Gain Indian Ocean Region Access in India's Backyard <i>The Economic Times</i>	23
Science & Technology		25-30
22.	पहचाने गए नए को-डोपेंट बेहतर कार्य करने वाले और अधिक स्थिर सौर सेल बना सकते हैं <i>Press Information Bureau</i>	25
23.	NASA's New Telescope Shows Star Death, Dancing Galaxies <i>The Indian Express</i>	26

24.	A Strategy to Stabilize Water-Splitting Photoelectrodes for Solar-To-Hydrogen Production	<i>TechXplore</i>	28
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General News

30-31

25.	MHA Adopts Modified Policy for Appointment on Compassionate Ground	<i>The Economic Times</i>	30
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Tue, 12 Jul 2022

Explained: Lockheed Martin Delivers Pod-Sized Laser Energy Weapon to USAF; What Is It?

US aviation company Lockheed Martin has reportedly delivered a compact directed energy weapon to the Air Force Research Laboratory of the US Air Force (USAF) for operational testing. What is this energy weapon, known as Laser Advancements of Next-Generation Compact Environments (LANCE), and what are its features? Why is this development significant? What impact will it have on future battlefields? The Indian Express explains.



Concept image of a LANCE pod mounted on an F-16 fighter aircraft. (Image courtesy: Lockheed Martin)

The LANCE delivery

Breaking Defense, a US website dealing with defence news, revealed in a report Monday (July 11) that Lockheed Martin delivered a LANCE system in compact form to the Air Force Research Laboratory of USAF in February this year. According to a Lockheed Martin executive quoted by the US website, the LANCE system is one-sixth the size of the other laser energy systems being developed by the company.

Why is this development significant?

The development is significant as it is an acknowledgement that efforts to reduce the size of the laser energy weapon have been successful, and it is now ready to be tested after being mounted on an aircraft. The fact that the size of the energy weapon has been reduced to that of a pod which can be mounted on a fighter aircraft, or any aircraft for that matter, is an important development. This laser weapon will give the USAF the capability of shooting down incoming anti-aircraft missiles, thus giving it a crucial edge over its adversaries.

Breaking Defense quoted a Lockheed Martin executive as saying that LANCE is the “smallest, lightest high energy laser of its power class that Lockheed Martin has built to date”. The

executive was further quoted as saying it is a critical benchmark in developing an operational laser weapon system in the airborne domain. While the energy weapon has been developed by Lockheed Martin, the beam control system has been developed by Northrop Grumman, and the pod which will be mounted on an aircraft has been developed by Boeing.

What are the implications of LANCE in future battlefields?

While LANCE has been reduced in size for operational use on aircraft, the system can definitely be put to use on a variety of platforms on land and at sea. At present, LANCE has been manufactured for a defensive role. However, this research could be furthered to develop an offensive weapon, one that could not only shoot down aircraft and drones, but also be mounted atop ground- and sea-based mobile platforms for offensive roles.

Which countries are actively pursuing development of laser energy weapons?

Apart from the US, several other countries have robust laser energy weapon development programmes. This includes China, Russia, Israel, Germany, France and India. Israel recently tested its laser weapon to shoot down a drone from the ground. Russia, meanwhile, said it had tested a laser weapon — Zadira — in Ukraine recently, a claim dismissed by western powers.

While Chinese Navy ships have been photographed with energy weapons onboard, the US Navy officially tested one such system some years back. India, too, is developing a directed energy weapon named DURGA II, which stands for Directed Unrestricted Ray-Gun Array. It is said to be a light energy weapon of 100 kilowatt capacity.

<https://indianexpress.com/article/explained/lockheed-martin-lance-laser-energy-weapon-united-states-air-force-8023972/>

THE ECONOMIC TIMES

Wed, 13 Jul 2022

India Intensifies Fighter Operations as China Raises Temperature Near Ladakh

India has intensified fighter operations in Ladakh, with frontline jets carrying out increased sorties including night operations, as the Chinese air force has embarked on an aggressive defence exercise across the border in Tibet. Sources said fighter aircraft including Rafales and Su 30MKIs have been operating with enhanced frequency from Leh and Thoise air bases for the past few days, even as the People's Liberation Army Air Force has activated its air defence network and is conducting a large-scale exercise involving its combat jets.

On the Indian side, night flying is being undertaken with enhanced frequency, as there have been instances of Chinese fighter jets probing areas close to the contested zones in eastern Ladakh. In an instance, Chinese fighter jets flew close to a contested area at around 4 am in late June, triggering a response from the Indian side. The incident did not escalate into a bigger crisis as the Chinese combat jet did not breach the border, but a formal protest was lodged by India as per the established border talks mechanism. Sources said the Chinese air defence network across the border, which includes the latest S-400 systems procured from Russia and locally manufactured HQ-9 systems, has been activated, and combat jets deployed at bases facing the Indian border are

carrying out increased sorties. China has also moved several of its advanced J-20 fighters to an airbase close to the Indian border. Since the Galwan crisis in 2020, when the Chinese army diverted a large group of ground forces that were conducting a routine exercise to the contested areas in eastern Ladakh, Indian forces have been on high alert for any unusual activity. At the height of the crisis in 2020 and early 2021, the Indian Air Force had moved several assets to the Ladakh border, including frontline jets, combat helicopters and a range of air defence systems.

<https://economictimes.indiatimes.com/news/defence/india-intensifies-fighter-operations-as-china-raises-temperature-near-ladakh/articleshow/92836903.cms?from=mdr>



Tue, 12 Jul 2022

Washed Away Strategic Bridge at India-China Border Reconstructed: Report

The Border Roads Organisation (BRO) has re-launched a strategic bridge in Kurung Kumey district of Arunachal Pradesh in a record one week time, under extremely challenging conditions, officials said. The Bailey Bridge on Koloriang-Lee-Huri road in the district, bordering the Tibet region of China, was washed away by huge boulders triggered by a major flash flood on July 3, snapping surface communication on the vital road. The personnel of Project Arunank under the BRO re-launched the bridge in a record time.

Project Arunank chief engineer Anirudh S Kanwar on Tuesday informed that the re-launching of the bridge was a challenging task posed by tough circumstances including incessant rains and landslides for which innovative techniques were used to overcome all challenges. The 119 Road Construction Company (RCC) team under Officer Commanding (OC) Roshan and Platoon Commander Major Mohit, worked round the clock for seven days despite heavy rains to restore connectivity by re-launching the bridge, Kanwar said. Right from diverting the traffic temporarily through the river bed, clearing five massive landslide points and making a temporary crossing point over a washed away culvert with heavy flow of slush, for transporting required men, machines and bridging stores to the spot, was carried out, he said.

“The limited space to unload the materials, assemble and launch the bridge was challenging for which loaded vehicles had to move 1-km in reverse gear to dump stores on site. Moreover, a 20-tonne excavator was used as a counterweight of the bridge to overcome limited backspace,” the chief engineer informed. He added that the bridge span had to be increased from 60-ft to 80-ft and again to 100 ft during construction, while major landslide occurred at the site during work when a few men escaped narrowly with serious injuries. The bridge being a lifeline brought the much desired relief to people living in remote villages of Damin, Huri and beyond as well as defence forces heading to Indo-China border, said former Kurung Kumey ZPC Sangha Tagik. The BRO deserves kudos for speedy re-launching of the bridge under challenging situation, he said and urged them to come to the rescue of border villagers when such situations occur in future.

<https://www.ndtv.com/india-news/washed-away-strategic-bridge-at-india-china-border-reconstructed-report-3150939>

Tue, 12 Jul 2022

Indian Army Gets Ready for Future Wars! To Adopt AI for Crucial Ops

Amidst the ongoing standoff between the Indian and Chinese forces along the Line of Actual Control (LAC), Indian soldiers will soon be able to decipher Mandarin into English. The Indian Army is also looking at possibilities of deploying new age disruptive technology Artificial Intelligence (AI) which will help the Indian soldiers in different terrains to deal with threats. For future warfare, it is looking at AI technology which will alert soldiers of mine-laden fields and robots to help in defusing them. Will there be robots fighting wars or replacing the boots on the ground? “The focus on AI driven technologies is growing and the Indian Army is keen to adopt them as it will help in dealing with the emerging threats in different terrains and hostile weather conditions,” said a senior officer who wished to remain anonymous.

A device has been readied by a Bengaluru startup CogKnit which can be used as a Mandarin Translator and Voice recognition. The handheld device can be operated offline, is AI enabled and according to Anuroop Iyengar, Co-founder and MD “It can recognize voices at a distance of 5ft. And it can be very useful during Border Personnel meetings and at times during standoffs. It is a good tool for better communication.” Adding, “The device has been tested in the forward areas. There has been a lot of assistance from the Indian Army. Work is going on to bring down the current weight of the device from 600 gms to just 200 gms and to also increase its range from the current 5 ft to 15 feet.” And also work is in progress to make it wearable on the wrist, and besides English do conversion in Hindi too for the soldiers to understand.

This along with two others are some of the devices and projects that were unveiled by Defence Minister Rajnath Singh in New Delhi on Monday. In all, 75 new Artificial Intelligence (AI) products/technologies meant for the Indian Armed forces and for Civil use were showcased at the first ‘AI in Defence’ (AIDef) symposium and exhibition, which was organised by the Ministry of Defence (MoD).

Autonomous Robot

Designed by the Army Design Bureau, the autonomous robot can be used as a soldier on patrol. It has the capability to identify friend or foe from a distance. According to Major Paras Kanwar, “This AI robot will store the data for future use and has the ability to be operated from a distance of more than 5 kms with wireless signals.” He is also part of an AI based offensive weapon project where the Army Design Bureau is creating a device which will help in locating, detecting and firing on the enemy. After clearing all trials, it will be ready for mass production.

Trishul

The Army is also working towards adopting Trishul. This is an AI-enabled and remotely-operated weapon station and has the capability to direct weapons and fire automatically, detect human movement. It can engage targets at 300 metres with 100 per cent probability of first round hits.

What was unveiled?

Several AI enabled products which included swarm drones, integrated command fusion, remote weapon station, robotic mine detector, intrusion detection system, remote weapon station, rail mounted robot, sensors for under water domain awareness, among others. Simulators/Test Equipment and speech/voice analysis using Natural Language Processing; AI Platform Automation; Autonomous/Unmanned/Robotics systems; Operational Data Analytics; Manufacturing and Maintenance; Intelligent Monitoring Systems; Lethal Autonomous Weapon Systems; Logistics and Supply Chain Management; Intelligent Monitoring Systems; Lethal Autonomous Weapon Systems; Cyber Security; Human Behavioural Analysis; BlockChain-based Automation; Command, Control, Communication; Computer & Intelligence, Surveillance & Reconnaissance;; Intelligent Monitoring Systems; and Lethal Autonomous Weapon Systems.

<https://www.financialexpress.com/defence/indian-army-gets-ready-for-future-wars-to-adopt-ai-for-crucial-ops/2591845/lite/>



पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

मंगलवार, 12 जुलाई 2022 5:07 अपराह्न

ब्राजील के नौसेना प्रतिनिधिमंडल ने पश्चिमी नौसेना कमान का दौरा किया

ब्राजील के औद्योगिक उत्पादन और इंजीनियरिंग के निदेशक वाइस एडमिरल लिबरल एनियो ज़ानेलेटो के नेतृत्व में ब्राजील के नौसेना प्रतिनिधिमंडल ने 11 जुलाई 2022 को पश्चिमी नौसेना कमान के फ्लैग ऑफिसर कमांडिंग-इन-चीफ वाइस एडमिरल अर्जेंद्र बहादुर सिंह से मुलाकात की। दोनों वरिष्ठ अधिकारियों ने साझा हित के विभिन्न मुद्दों पर चर्चा की। इनमें रक्षा और पनडुब्बी प्रौद्योगिकी, मेक इन इंडिया, नौसेना में पेशेवर सहयोग के लिए पहल, और समान विचारधारा वाली नौसेनाओं/राष्ट्रों के साथ साझा समुद्री हितों के लिए भारतीय नौसेना के दृष्टिकोण के मुद्दे शामिल थे।

दो दिवसीय यात्रा के दौरान, ब्राजील के प्रतिनिधिमंडल ने पनडुब्बी रखरखाव पर अपने भारतीय नौसैनिक समकक्षों के साथ विस्तृत चर्चा की। प्रतिनिधिमंडल ने मझगांव डॉक्स शिपबिल्डर्स लिमिटेड और भारतीय नौसेना की कलवारी (स्कॉर्पिन) श्रेणी की पनडुब्बी का भी दौरा किया। ब्राजील की नौसेना के पास 4 स्कॉर्पिन श्रेणी की पनडुब्बियां हैं और इन डीजल-इलेक्ट्रिक आक्रामक पनडुब्बियों के रख-रखाव के लिए सहयोग के विकल्प तलाश कर रही हैं।

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1840983>



**Press Information Bureau
Government of India**

Ministry of Defence

Tue, 12 Jul 2022 5:07PM

Brazilian Navy Delegation Visits Western Naval Command

A Brazilian Navy delegation led by Vice Adm Liberal Enio Zanelatto, Director of Industrial Production & Engineering, called on Vice Adm Ajendra Bahadur Singh, Flag Officer Commanding-in-Chief, Western Naval Command on 11 Jul 22. The two senior officers discussed various issues of common interest, including defence & submarines technology, Make in India, initiatives towards professional cooperation between the navies, and the outlook of the Indian Navy towards shared maritime interests with all like minded navies/ nations.

During the two day visit, the Brazilian delegation held extensive discussions with the Indian Navy counterparts with focus on maintenance of submarines. As part of the visit, the delegation also visited Mazagon Docks Shipbuilders Ltd. & a Kalvari (Scorpene) class submarine of the Indian Navy. The Brazilian Navy also operates 4 Scorpene class submarines and is exploring options for collaboration towards maintenance of the diesel-electric attack submarines.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1840949>

TIMES NOW

Tue, 12 Jul 2022

Pakistan Targeting Indian Army Officers Through Whatsapp Malware

Pakistan is targeting Indian Army officers, but this time, it's cyber attacks. According to Intelligence agencies, a malicious piece of malware (this file called CSO_SO on Deputation DRDO apk'), having originated from a suspicious Whatsapp number is being sent as a Whatsapp message to army officers. The report speaks of a fake announcement of deputations for defence personnel to the Defence Research and Development Organisation (DRDO) as chief security officers or CSO. The announcement is dated 26 May 2022 and is signed by Rajan Kumar. The recipients are encouraged to forward the message to as many eligible candidates so that they can apply for deputation to the DRDO.

Interestingly, there is a genuine DRDO letter asking officers to apply for the post of CSO, but the one being circulated is a decoy. Everything is the same except that it "compromises the digital artefacts" and connects the officer once he or she has clicked on it to a server in Nuremberg, Germany. Then, it will be easy to pick up all sensitive information on the mobile phone of the officer and also, on his or her laptop or desktop. Intelligence agencies spotted this piece of malware and took immediate action. Usually, armed forces officers and others in sensitive positions in the Indian government are encouraged not to have top-secret information on laptops or desktops that have an internet connection but use a separate device. As a result,

even these efforts using malware are not expected to produce helpful intelligence. But officers, on the rare occasion that they do put classified files in internet-linked computers or phones, become targets of such attacks.

<https://www.timesnownews.com/india/pakistan-targeting-indian-army-officers-through-whatsapp-malware-article-92831789#:~:text=New%20Delhi%20%3A%20Pakistan%20is%20targeting,Whatsapp%20message%20to%20army%20officers.>

TIMES NOW

Tue, 12 Jul 2022

INS Vikrant Successfully Completes Final Phase of Trials: How This Boosts Indian Navy's Strategic Influence in Countering China

Most of the equipment on board the India's Navy's flagship carrier were tested on Sunday including critical Aviation Facilities Complex equipment which control the operations of MiG-29K/KUB fighter jets from the aircraft carrier. India's first indigenous aircraft carrier INS Vikrant will be commissioned into the navy by end of August to commemorate 75 years of India's Independence. The aircraft carrier successfully completed the fourth and final phase of sea trials on Sunday and is all but ready to set sail alongside its Russian made counterpart INS Vikramaditya. The Ministry of Defence announced, "The indigenous design and construction of the indigenous aircraft carrier [IAC-1] by the Indian Navy and Cochin Shipyard Ltd (CSL) is a shining example in the nation's quest for 'Aatmanirbhar Bharat' and 'Make in India Initiative,' with more than 76 per cent indigenous content."

Most of the equipment on board the India's Navy's flagship carrier were tested on Sunday including critical Aviation Facilities Complex equipment which control the operations of MiG-29K/KUB fighter jets from the aircraft carrier. Reports said that the full integration and trials of the Aviation Facilities Complex will be carried out by the navy only after the warship's commissioning on August 22nd.

The making of INS Vikrant

The 40,000 tonne indigenous aircraft carrier is 262 metres long, 62 metres wide and 59 metres high including the superstructure – five in number. It has 14 deck levels including the 5 in the superstructure and can accommodate a crew of 1,700, including women officers for whom specialised cabins have been constructed. INS Vikrant's propulsion system was built with guidance from Italian shipbuilder Fincantieri. For normal operations, the Vikrant cruises at 18 knots (33 kmph), a speed at which it has an endurance of about 7,500 nautical miles (13,800 kilometres). INS Vikrant bears the name of India's first aircraft carrier that was acquired from the United Kingdom in 1961 and it played a crucial role during the 1971 Bangladesh war. It was decommissioned in 1997.

INS Vikrant is Indian down to the steel that was used to build the vessel. The Vikrant is built from SAIL's DMR 249A and B grade steel that was developed and manufactured in

collaboration with the Defence research and Development Organisation (DRDO) and Steel Authority of India (SAIL). According to the Centre, the vessel is 76 per cent made from Indian material/equipment. INS Vikrant is composed of 23,000 tonnes of steel, 2,500 km of electrical cable, 150 kilometres of pipes, 2,000 valves. Finished products include anchor capstans, rigid hull boats, galley equipment, air conditioning and refrigeration plants, steering gear, over 150 pumps and motors, communication equipment and the ship's combat network systems.

The INS Vikrant will be carrying the Russian-made MiG-29K fighter jet, Kamov-31 early warning helicopters, the indigenously manufactured Advanced Light Helicopters and the MH-60R multirole helicopter made by the American defence major Lockheed Martin, according to the Indian Navy. The Defence Ministry said that the building of INS Vikrant "has grown the country's indigenous shipbuilding capabilities, and developed a large number of ancillary industries."

Why was INS Vikrant developed?

INS Vikrant will be the Indian navy's second aircraft carrier. It will give the Indian Navy additional firepower and a strong leverage in the Indian Ocean region over which India is seeking to establish itself as a security provider and a challenger to China which has already inducted two such vessels into its fleet. The communist nation recently launched a third one although it will be years before it is operational. This new carrier will be China's first indigenous aircraft carrier. Aircraft carriers are the most valuable and therefore vulnerable sea-based assets. Few countries in the world have the capability to design and manufacture aircraft carriers. As India enters this club, it will now have to take a tough call on whether or not to build another indigenous aircraft carrier – the IAC-2.

Former Chief of Defence Staff General Bipin Rawat had questioned the need for another IAC after the first one overshot the deadline and budget. However, former navy chief, Admiral Karambir Singh, had stressed the need for IAC-2. "As a navy, we are absolutely clear about the need for a third carrier. Air operations are absolutely integral to naval operations, so air power at sea is absolutely required," Singh said on the eve of Navy Day last December. "Navies are all about reach and sustenance. For an aspirational country like India, which wants to become a \$5-trillion economy, you have to be able to (project power) outwards. We cannot be a navy that is tethered to the shore," Karambir Singh said. The political leadership is yet to decide on the need of IAC-2.

<https://www.timesnownews.com/exclusive/ins-vikrant-successfully-completes-final-phase-of-trials-how-this-boosts-indian-navys-strategic-influence-in-counteracting-china-article-92830596>



Tue, 12 Jul 2022

All Systems Go; The Significance of INS Vikrant, The First Made-In-India Aircraft Carrier

It was a big day for the Indian Navy. On Sunday, the aircraft carrier Vikrant successfully completed its fourth and final phase of sea trials and is likely to be commissioned next month. In

a tweet, the Navy said it conducted sea trials of major equipment and systems, including key aviation components. “Indigenous aircraft carrier Vikrant successfully completed 4th phase of sea trials integrated trials of major equipment and systems, including key aviation equipment undertaken with further enhancement in performance, towards delivery of the largest indigenous warship in Azadi Ka Amrit Mahotsav,” it tweeted along with two photos.

The INS Vikrant is an aircraft carrier – the largest and most complex warship India has ever built. What is this vessel and why its induction is historic for India?

What Is The Aircraft Carrier INS Vikrant?

The INS Vikrant – the 44,000-ton indigenous aircraft carrier (IAC) – is the first to be designed and constructed in India. It is currently codenamed IAC-1 and will be called INS Vikrant once it enters service in the Indian Navy. An aircraft carrier is an airfield at sea – a warship with a long, flat deck for fighter jets to take off and land. Often it is the flagship that leads a battle group and is escorted by destroyers, frigates, and submarines to shield it from any attack. After its induction, the warship will be a key component of the Indian Navy’s push to establish itself as a “blue water” force, one with the ability to project its power on distant seas. It is especially important amid India’s bid to be a net security provider in the Indian Ocean region where it faces China, whose navy, is focused on aircraft carriers and has already inducted two vessels.

The Vikrant stretches 262 metres in length, exceeding that of two football fields and is 62 metre wide. Around 20 aircraft can be parked in the hangar. With 14 decks, the ship has over 2,300 compartments with a special cabin for women officers and can accommodate 1,700 personnel. It has a top speed of around 28 knots (more than 50 kmph) and a cruising speed of 18 knots with an endurance of about 7,500 nautical miles, reports News18.com. “There is a fully functional medical complex inside the ship with two operation theatres. There is a kitchen to cater to the needs of at least 2,000 staff,” Major Manoj Kumar, the designer architect of IAC-1, told reporters in August 2021, when the first sea trial had begun. According to him, the steel used in the ship is equivalent to three Eiffel Towers and the power used “can light up half of Kochi city”.

The construction of INS Vikrant began at the state-owned Cochin Shipyard in Kerala’s Kochi in 2009 and the cost came up to Rs 23,000 crore. The Indian Navy has said that more than 50 Indian manufacturers were directly involved in the project, and about 2,000 Indians received direct employment on board the ship every day. More than 40,000 people were employed indirectly.

Why An Indigenous Aircraft Is Significant To India

Over 76 per cent of the material and equipment on board the carrier is indigenous, including 21,500 tons of special grade steel developed indigenously and used in Indian naval ships for the first time. The Union Ministry of Ports, Shipping and Waterways has said that the shipping yard “carried out the detailed engineering of the ship using advanced software which enabled the designer to get a complete 3D view of the compartments of the ship”. This is the “first time in the country that a ship of the size of an aircraft carrier is completely modelled in 3D and production drawings extracted from the 3D model”, reports media sources. The Made-in-India warship is a feather in the country’s cap, as only five or six nations have the capacity of building an aircraft carrier.

What Aircraft Will The Ship Carry?

The warship has been designed to operate “an assortment of fixed-wing and rotary aircraft”. It will be carrying the Russian-made MiG-29K fighter jet, Kamov-31 early warning helicopters, the indigenously manufactured Advanced Light Helicopters and the MH-60R multirole helicopter made by the American defence major Lockheed Martin, according to the Indian Navy.

The warship will offer an “incomparable military instrument with its ability to project Air Power over long distances, including Air Interdiction, Anti-Surface Warfare, offensive and defensive Counter-Air, Airborne Anti-Submarine Warfare and Airborne Early Warning”, it said.

Why Is It Named INS Vikrant?

INS Vikrant was India’s first aircraft carrier, which it acquired from the United Kingdom in 1961. It played a key role in the 1971 war with Pakistan which led to the creation of Bangladesh. The original Vikrant was deployed in the Bay of Bengal, and its two air squadrons of Sea Hawk fighter jets and Alize surveillance aircraft were used in strikes on ports, merchant ships, and other targets, and to prevent Pakistani forces from escaping through maritime routes, according to a report in The Indian Express. It was decommissioned in 1997. Now India’s first homemade aircraft carrier will carry the name of her illustrious predecessor.

Does India Have Other Aircraft Carriers?

The Indian Navy has only one operational aircraft carrier at present – the INS Vikramaditya. It served in the erstwhile Soviet and, then the Russian navy as Admiral Gorshkov before being inducted by India in 2013. The country’s two earlier carriers, INS Vikrant and INS Viraat, were originally the British-built HMS Hercules and HMS Hermes before being commissioned into the Navy in 1961 and 1987 respectively.

<http://www.indiandefensenews.in/2022/07/all-systems-go-significance-of-ins.html>



Tue, 12 Jul 2022

Around 100 MSMEs Involved in Manufacturing of Aircraft Carrier INS Vikrant

About 100 micro, small and medium enterprises (MSMEs) and Indian industrial companies were involved in the manufacturing of India's Indigenous Aircraft Carrier (IAC) Vikrant, said Indian Navy officials. After completing its fourth phase of sea trials on Sunday, it is all set to be commissioned into the Indian Navy in August, 2022. With the IAC India has entered the list of nations select league of nations who have the capability to build own aircraft carriers which includes United States, the United Kingdom, Russia, France and China. The warship is made of a large number of indigenous materials such as steel, other equipment and systems which are manufactured by Indian industrial houses and about 100 MSMEs with the overall project cost of Rs 19,341 crore.

According to the Indian Navy the fourth phase of sea trials for IAC consisted of integrated trials of majority of equipment and systems onboard including some of the Aviation Facilities

Complex equipment were undertaken. "The ship's delivery is being targeted in end July 2022, followed by commissioning of the ship in August 2022 to commemorate Azadi ka Amrit Mahotsav," the Navy added. The Indigenous Aircraft Carrier is 262 meter long, 62 meter at the widest part and height of 59 meter including the superstructure. There are 14 decks in all, including five in the superstructure.

The ship has over 2,300 compartments, designed for a crew of around 1700 people including specialised cabins for women officers. The aircraft carrier will increase India's reach from the Indian Ocean to the Pacific and Atlantic Ocean.

<http://www.indiandefensenews.in/2022/07/around-100-msmes-involved-in.html>

अग्निबाण

मंगलवार, 12 जुलाई 2022

इन भारतीय प्रतिष्ठानों पर 200 गुना बढ़े चीनी साइबर हमले, सामने आए चौकाने वाले आंकड़े

पहले डोकलाम फिर गलवान में भारतीय सैनिकों के साथ चीनी सैनिकों की हुई झड़प ने चीन को ये अहसास दिला दिया है कि अब भारत से टक्कर लेना आसान नहीं है और यही वजह है कि चीन भारतीय सेना की रक्षा तैयारियों से जुड़ी जानकारियों पर नजर बनाये हुए हैं. चीन भारत से इस तरह से डरा हुआ है कि गलवान की घटना के बाद से उसने बीते दो साल में देश के कई अहम प्रतिष्ठानों पर 43 हजार से ज्यादा साइबर हमले किए हैं.

रिपोर्ट में चौकाने वाले आंकड़े

साइबर थ्रेट पर नज़र रखने वाली इंडिया फ्यूचर फाउंडेशन (India Future Foundation) की एक रिपोर्ट से खुलासा हुआ है कि गलवान घटना के बाद से देश के संवेदनशील प्रतिष्ठानों पर चीन से कुल 40 हजार 300 साइबर अटैक की जानकारी सामने आई है. रिपोर्ट में ये भी कहा गया है कि गलवान के बाद से साइबर अटैक की घटनाओं में 200 फीसदी का इजाफा हुआ है.

इन प्रतिष्ठानों पर चीन की नजर

रिपोर्ट के मुताबिक चीन से हो रहे साइबर हमले सबसे ज्यादा पावर सेक्टर, बैंकिंग, रेलवे और रक्षा सेक्टर से जुड़े क्षेत्रों में हो रहे हैं. जानकारों का मानना है कि एक सोची समझी साजिश के तहत चीनी हैकर्स भारत के कंप्यूटर्स को टारगेट कर रहे हैं. जिसका मकसद देश की अहम क्रिटिकल इंफ्रास्ट्रक्चर और डिफेंस से जुड़ी जानकारियों को चुराना है वहीं साइबर अटैक चीन का एक हाईटेक वार है.

निशाने पर था लद्दाख पावर ग्रिड

कुछ दिनों पहले लद्दाख के एक पावर ग्रिड पर भी ऐसे ही एक साइबर अटैक की जानकारी सामने आई थी. अमेरिकन साइबर सिक्योरिटी फर्म (American Cyber Security Firm) रिकार्डेड फ्यूचर ने ये दावा किया था लद्दाख के एक पावर ग्रिड की जानकारी जुटाने के लिए चीनी साइबर अटैकर्स ने उसे अपने टारगेट पर लिया था.

चीनी सेना की सीधी भूमिका

रिपोर्ट के मुताबिक चीन से भारत समेत दुनिया के कई देशों में होने वाले साइबर अटैक और हैकिंग में चीन की सेना पीपुल्स लिबरेशन आर्मी यानि पीएलए शामिल रहती है. चीन भारत की रक्षा तैयारियों से लगातार परेशान होने का साथ डर रहा है. दरअसल बीते कुछ सालों में फ्रांस से अचूक रफाल, अमेरिका (US) से आये ताकतवर अपाचे और चिन्क हेलीकॉप्टरों के साथ डिफेंस रिसर्च एंड डेवलपमेंट ऑरगेनाइजेशन (DRDO) की ओर से लगातार हो रही नई मिसाइलों की टेस्टिंग ने चीन की चिंता बढ़ा दी है. यही वजह है कि पिछले कुछ महीनों में चीन के साइबर हैकर भारत के रक्षा ठिकानों से जुड़े कंप्यूटर्स के साथ-साथ साथ अहम इंस्टॉलेशन पर भी साइबर हमले कर रहा है ताकि देश की रक्षा से जुड़ी जानकारियों को हासिल किया जा सके.

सूत्रों के मुताबिक चीन ये पता लगाने की कोशिश में है कि भारत एंटी मिसाइल डिफेंस सिस्टम के साथ-साथ अपने फाइटर जेट्स में लगे दूसरे हथियारों को कहां-कहां तैनात कर रहा है. चीन के साइबर हैकर्स डिफेंस सेक्टर के साथ-साथ देश के दूसरे क्रिटिकल सेक्टर जैसे के पावर, बैंक, सेंट्रल पैरामिलिट्री फोर्स और पुलिस डिपार्टमेंट के कंप्यूटर्स को भी हैक करने की कोशिश में हैं. साइबर थ्रेट इंटेलिजेंस रिपोर्ट के सूत्रों के मुताबिक राज्यों की स्टेट पुलिस, को-ऑपरेटिव बैंक, पैरामिलिट्री फोर्स, सिविल एविएशन और गवर्नमेंट डिपार्टमेंट्स को भी साइबर हैकर ने टारगेट किया है.

क्या कहती है IB की रिपोर्ट

वहीं IB की साइबर थ्रेट की रिपोर्ट के मुताबिक पिछले साल नवंबर महीने देश में रक्षा के साथ साथ सेंसिटिव इंस्टालेशन से जुड़े 11 कंप्यूटर्स को हैक किया गया है जिसमें दिल्ली के भी दो कंप्यूटर्स हैक हुए और ऐसे 63 वेब एप्लीकेशंस की जानकारी आयी है जिनके जरिये कंप्यूटरों में सेंध लगाने की नाकाम कोशिशें लगातार जारी हैं.

<https://www.agniban.com/chinese-cyber-attacks-on-these-indian-establishments-increased-by-200-times-shocking-figures-surfaced/>

Wed, 13 Jul 2022

Since Galwan Border Flare-Up, China has Installed Massive Military Infrastructure, Says the Warzone

China has strengthened its military positions in Ladakh and Aksai Chin to such an extent that India will find it tough to assert its claims to disputed regions where the Line of Actual Control (LAC) has always been fluid, according to the Warzone online magazine. At several key points, the Chinese have turned what used to be temporary camps on the edge of their own territory into “permanent all-weather encampments”, says The Drive – The Warzone, which focuses on defence issues. The Chinese are also building roads and bridges that will sharply cut the time needed for back-ups to reach the frontline, particularly in Aksai Chin.

The military build-ups are particularly strong in the Depsang Plains where both Chinese and Indian forces patrolled till a few years ago and also at the Galwan Valley where soldiers died in clashes between the two armies in 2020, says The Warzone. Two years after the Galwan border flare-up, “the overall strategic picture is one of remarkable Chinese military build-up and encroachment,” the magazine says. For instance, the intensity of China’s military build-up in and around Aksai Chin “effectively puts it in a position where its ability to project military power into the disputed region is relatively uncontestable,” the Warzone says.

“India now faces a (quite literal) uphill battle to restore even a semblance of control over its territorial claims in this area while it simultaneously faces similar challenges at other locations of its shared border farther East,” the magazine adds. The magazine quotes Vikram Singh, Asia senior advisor at the US Institute for Peace, as saying enhancing India’s situational awareness and deterrent posture will be critical to maintaining stability. “In Aksai Chin, China has largely replicated its success of gaining de facto control of disputed territory in the waters of the South China Sea,” Singh says. “Getting the best intelligence, surveillance and reconnaissance capabilities possible and investing in its military to deter further Chinese provocations is vital,” Singh said. “Beijing’s success with coercion and militarisation of disputed territory below the threshold of conflict can easily lead to miscalculation about what will provoke a forceful response from a neighbour,” he added.

Three Air-Bases, Better Roads

China’s strengthening of its border positions is in addition to the formidable infrastructure build-up that’s taking place in Tibet and also Xinjiang with three air bases being built or expanded and improved roads being constructed. The strongest Chinese build-up has been in the Depsang Plains where there have long been differences about the Line of Actual Control (LAC). Here the Chinese initially set up tent camps and have now turned them into “all-weather military encampments” to deal with the treacherous winter conditions. Says The Warzone: “Today, this area boasts a large military position composed of infantry shelters and ammunition storage facilities, as well as tanks and artillery systems. The Chinese presence at the Depsang Plains evolved from a limited mission to a permanent deployment of a large combat-capable force that would present serious challenges for India to dislodge from its positions.”

A 255-km All-Weather Road

Depsang is particularly important for India because at one point it is barely 30km from the high-altitude Daulat Beg Oldi airbase. Also in the region, India has built the 255-km all-weather Darbuk-Shyok-Daulat Beg Oldi (DSDBO) road which is reckoned to be a possible trigger for the latest round of Chinese aggression. In 2013, soon after the road was completed, Chinese soldiers occupied portions of the Depsang Plains and didn't pull back for over three weeks. Portions of the Galwan Valley where the deadly skirmish between Indian and Chinese troops took place in May 2020 also overlook the DSDBO road. The Chinese have also built up well-manned outposts at the Galwan Valley. Similarly, it has strengthened its forces at several points in the Gogra & Hot Springs area.

Solar Panels For Energy

Says The Warzone: "Even at these locations of the so-called 'mutual withdrawals' just a single kilometre removed from their initial positions, Chinese forces have established large permanent bases supported by solar panels to provide them with energy and modern roads to resupply them." One area where there has been a slight pullback by the Chinese is around the Pangong Tso Lake. But that was partly because India had managed to move positions here in its favour. But here too, the Chinese have built up permanent positions. Says The Warzone: "At the Pangong Lake, for example, new roads – and a bridge across the lake just outside of India's territorial claim – reach all the way around the lake to the town of Rutog where large military facilities now dominate the landscape."

The latest Chinese military build-up will, according to The Warzone, make it tougher for India to assert its claims to Aksai Chin. "Through the crisis, China managed to effectively take control of Aksai Chin – in a practical military sense, this is a departure from its previous disputed status – and has heavily militarized the entire region around it."

Upgraded Infrastructure

"Where China in the past maintained a logistics network that could support the presence of several hundred Chinese troops on the frontlines of its territorial claims in Aksai Chin, this upgraded infrastructure and support network now allows it to reinforce many thousands of troops simultaneously," says The Warzone. Close to the frontline, the Chinese have also strengthened their aerial support. Says The Warzone: "Prior to the 2020 crisis, small Chinese observation posts would sometimes have a small helipad nearby." It adds: "The new disposition includes the permanent deployment of entire helicopter squadrons at key logistical nodes." The Chinese have backed up their frontline positions by building new air bases in Xinjiang and also in Tibet. Hotan airbase in Xinjiang is not far from the zone that separates Aksai Chin and Ladakh.

In addition, the Chinese are building new heliports in different parts of the Tibetan Plateau. The Warzone says that in Golmud, "a behemoth heliport can be seen under construction south of its existing airport." It adds: "A total of 63 individual hangars are visible along with the construction of barracks and support buildings." Construction at the site began in early 2020.

India's Rafale Squadrons

India has also been strengthening its positions on the border but not in the massive way the Chinese have been doing. India already has forces on the ground and appears to be focusing more on enhancing its aerial strength. Many of the 35 Rafale aircraft that have been bought from

France are now operational. One squadron of Rafales is based in Ambala about 400km from Ladakh. A second squadron has been based at Hasimara, not far from the Bhutan-Sikkim-Tibet trijunction. India may possibly have acquired US-made MQ-9B unmanned aerial vehicles and these would better enable them to track movements by Chinese forces. However, it has been cautious on the ground, according to The Warzone which says: “Its risk-averse approach did eventually allow the Chinese military to dig in at Aksai Chin.”

Indian analysts quoted in The Warzone point out one potential plus point with the Chinese having established permanent bases is that they offer clear targets if ever hostilities should break out.

<http://www.indiandefensenews.in/2022/07/since-galwan-border-flare-up-china-has.html?m=1>



Tue, 12 Jul 2022

Chennai-Based Big Bang Boom Solutions will Deliver its Anti-Drone Defence System (ADDS) to the IAF

The ADDS provides continuous passive RF scanning on a wide band of frequencies, the manufacturer, Big Bang Boom Solutions, has said. (Big Bang Boom Solutions) Chennai-based Big Bang Boom Solutions will deliver its Anti-Drone Defence System (ADDS) to the Indian Air Force (IAF) from August, Gaurav Sharma, chief government relationship officer of the defence start-up firm said. Speaking at the East Tech 2022 event in Kolkata on 8 July, Sharma said the company received a request for proposal (RFP) in June 2022 to provide an undisclosed number of ADDS units to the IAF.

The complete ADDS system is portable and can be operated by a single person. The system utilises radar detection, electro-optic/infrared (EO/IR) tracking, and passive radio frequency (RF) scanning features to provide countermeasures against rogue unmanned aerial vehicles (UAVs), Big Bang Boom Solutions said.

<http://www.indiandefensenews.in/2022/07/chennai-based-big-bang-boom-solutions.html>



Tue, 12 Jul 2022

Indian Security Forces to Test IDR's Nano UAV

An in-flight Doot MK-I nano UAV with ISR package being exhibited at East Tech 2022. The UAV has been tested by NSG and is currently being tested by Assam Rifles in Manipur. Noida-based Indian Defence Reforms' (IDR's) Doot MK-I, a nano unmanned aerial vehicle (UAV) – designed for intelligence, surveillance and reconnaissance (ISR) – has undergone initial tests by India's National Security Guard (NSG) in June, Mayank Pratap Singh, co-founder and CEO of

IDR, told Janes at East Tech 2022, held in Kolkata by the Indian Army's Eastern Command on 7 and 8 July.

“The NSG will be conducting field trials of Doot MK-I in the last week of July in Camp Manesar” in India's northern state of Haryana, Singh said. The Assam Rifles is currently testing Doot MK-I in the north-eastern state of Manipur, Singh added. The UAV will be tested by the “Indian Army's Northern Command”, the Rashtriya Rifles (a counter-insurgency force under the Indian Army), and the Central Reserve Police Force (CRPF) by the end of 2022, Singh told Janes.

<http://www.indiandefensenews.in/2022/07/indian-security-forces-to-test-idrs.html>



Tue, 12 Jul 2022

Kolkata-Based Saif Seas has Delivered '50 Pieces' of its “Remote-Operated Buoy” to the Indian Navy

Saif Seas has delivered 50 “remote-operated buoys” (pictured above with PM Modi), which can be used for rescue and surveillance operations, to the Indian Navy. Kolkata-based Saif Seas has delivered “50 pieces” of its “remote-operated buoy” to the Indian Navy and will be delivering 50 more by the end of 2022, Taher Calcuttawala, co-founder and chief operating officer of the company, told Janes at East Tech 2022, held in Kolkata by the Indian Army's Eastern Command on 7 and 8 July. The battery-operated unmanned surface vehicle (USV) is designed for rescue but can be customised for various other missions by fitting it with “HD cameras, robotic probes, or weaponry”, Calcuttawala said.

While the USV was initially designed to rescue one person, the system has been enhanced and tested to have the capability of rescuing “at least three people” weighing up to 300 kg, Calcuttawala added. He told Janes that Saif Seas is in talks with the Indian Army to supply the USV for surveillance purposes and hopes that a deal will be established soon.

<http://www.indiandefensenews.in/2022/07/kolkata-based-saif-seas-has-delivered.html>



Wed, 13 Jul 2022

Silent Sentry: A Rail-Mounted Robot that will Man the LOC to Identify Infiltration Bids

Defence Minister Rajnath Singh on Monday launched 75 defence products powered by artificial intelligence at an event titled 'AIDef (Artificial Intelligence in Defence)' in New Delhi. While some products are already being used by the armed forces, the rest are in the process of deployment. These 75 products are in the domains of robotics systems, cyber security, human behaviour analysis, intelligent monitoring system, supply chain management, voice analysis and

C4ISR (command, control, communication, computer and intelligence, surveillance and reconnaissance) and operational data analytics. Two such product that caught the eyes of many were artificial intelligence-based silent sentry and gesture recognition system that will give the Indian Army edge over its enemies.

What Is Silent Sentry And Gesture Recognition System?

Silent Sentry is a key technology developed by the design bureau of the Indian Army to plug the gaps in surveillance networks. They are rail-mounted robots that are used as additional eyes and ears to enhance surveillance on borders. According to sources, it is currently deployed on the Pakistan border in Jammu and Kashmir. The Army design bureau has also shared its design with the indigenous industry so that it can be produced in large numbers. Such robots are also being used by South Korea and Israel to man their borders. AI enabled gesture recognition system, which has been developed by Bangalore-based public sector unit Bharat Electronics Limited, can be easily integrated on a network of IP enabled cameras to enhance monitoring.

How Will They Help The Forces

Silent sentry, which acts as an additional eye and ear, will help man the LoC to identify infiltration bids and on perimeters of units and installations to enhance the surveillance grid. It can do continuous patrolling for six hours and when the battery is down, it automatically charges itself by going to the charging point and then starts patrolling again. It recognises faces from its database and sends out alerts when someone sees an unknown. It can send data through wireless to a base 5 to 10 km away Gesture recognition system will help the forces in determining if an approaching individual is a friend or foe. The system uses deep-learning to identify gestures like a human walking with or without a gun, crawling with or without a gun and crouching with or without a gun.

<http://www.indiandefensenews.in/2022/07/silent-sentry-rail-mounted-robot-that.html?m=1>



Tue, 12 Jul 2022

This Wacky Wireframe Fighter Replica is Used on India's Newest Carrier as Training Aid: US Media

Spotted in the background of a photo taken aboard the Indian Navy's new INS Vikrant aircraft carrier, three wheels positioned similarly to that of many fighter jets' wheelbases can be seen attached to something barely reminiscent of an airframe. At first glance, it almost looks as though a cloak of invisibility has been tossed over a mysterious new aircraft or that Wonder Woman landed on the carrier, but upon closer inspection, it can be deduced that the wireframe is a very minimalistic example of a carrier deck crew aircraft handling training aid. Indian defence journalist Angad Singh, or @zone5aviaition on Twitter, shared the snapshot of the deck belonging to the Indian Navy's new home-built INS Vikrant with the gangly contraption in the background. Upon closer examination, it became clear that the wireframe was meant to represent

the dimensions and wheelbase of a Mikoyan MiG-29K — India’s current carrier-based multi-role fighter.

“[That] is a wireframe mock-up for deck handling, lift clearance, parking/lashing et al,” Singh told The War Zone. “[The Indian Navy] had something similar on deck when Vikramaditya was being refurbished. Made sense that the navy would trot it out again for the next boat. But yeah, not very commonly known.”



Another look at the possible MiG-29 airframe mock-up on the deck of INS Vikrant

To be clear, as Singh noted in his response, the “similar” Marquette that was used aboard the INS Vikramaditya as the Kiev-class carrier was being modified to better suit the Indian Navy was actually a helicopter mock-up. Although, it was created to address the same principle and could imply that such wireframes are a staple of training procedures for Indian Navy’s carrier deck crews. While it is unclear what exactly this incredibly basic deck-handling aid is made out of, it certainly weighs in on the lighter side as it would appear that the MiG-29K replica is meant to primarily provide the dimensions of the jet and the wheelbase. This way, carrier deck crews can use the airy wireframe in training exercises that would require movement all across the surface of the deck, in and out of the launch and recovery areas, the elevators, and inside the carrier’s hangar bay.



The four 'faux F-35 stealth fighters' utilized by the UK's Royal Navy for training

Although the appearance of the wireframe in the background of the image shared on social media may be one of the first snapshots of it to begin circulating the internet, it certainly isn’t the first time that a mock-up of a fighter jet has been used for carrier operations training purposes. The big difference is that those usually have a lot more substance and represent their aircraft in solid form. In fact, the U.S. Navy uses real retired airframes for ground handling instruction, firefighting drills, crash recovery exercises, and other training aboard its carriers. There is usually always at least one derelict airframe present on America's flattops, which can confuse onlookers who think it's a flyable aircraft even though the ship's air wing isn't embarked.

Even full-on prototypes have been hauled aboard Navy carriers for fit checks — without flying. Another example included four life-size replicas of F-35 Lightning II jets that were used on land at Royal Naval Air Station Culdrose by the HMS Queen Elizabeth's future deck crew. The life-size mock-ups were used by the crewmembers to learn how to efficiently move the aircraft around on the ship, just as the MiG-29K wireframe is intended to, while the Royal Navy awaited the rest of their U.S.-supplied F-35B Joint Strike fighters. “While they have no engines, sensors, or weapons, the four replica F-35s – dubbed the ‘faux fighters’ by the team at Culdrose – will allow handlers to get used to the size and weight of the real thing – without the danger of damaging a multi-million-pound stealth fighter – ahead of moving them around for real from autumn 2018,” read an announcement published by the Royal Navy in 2017.

Made of mostly fiberglass, the faux fighters provided trainees with the opportunity to fill their ‘fuel’ tanks with water, and the two replicas fitted with opening cockpits allowed crewmembers to practice safety procedures like removing an injured pilot from the cockpit. The ‘mini air force,’ as the Royal Navy dubbed it, provided their naval force with the chance to train realistically while awaiting their new F-35 fleet and managed quite a bit of the risk that comes along with carrying out exercises using actual multi-million dollar jets in the process.

China has also largely embraced this concept. In fact, they have a full-on carrier mock-up on land including aircraft for its deck. Most recently, photographs surfaced in 2021 that showed what appeared to be a mock-up of the country’s Shenyang FC-31 stealth fighter stationed at the Chinese Navy’s land-based carrier test facility. While the replica was intended to serve the same training purposes as the Royal Navy’s and the Indian Navy’s dummy jets, this particular development concurrently added further evidence that China was in the process of adapting its stealthy light-to-medium weight land-based fighter jet for carrier operations. That assumption was later confirmed in flying form.

China and India have both been busy developing their own domestically built aircraft carriers, with India’s INS Vikrant that the MiG-29K wireframe was pictured aboard having first started sea trials in 2021. Despite a number of COVID-related delays and issues with remaining under budget, INS Vikrant seems to now be back on track for fielding, having just completed its fourth phase of sea trials this past weekend. Including the MiG-29K, the vessel will reportedly be able to operate up to 30 fighters and helicopters including Kamov-31 helicopters and MH-60R multi-role helicopters. Although, the ship’s aircraft fleet could later feature western types currently competing for a contract with the Indian Navy, including the French Rafale M and the F/A-18E/F Super Hornet. Perhaps we will see more of these wacky wireframe aircraft as INS Vikrant nears commissioning, although time is running out with her final delivery now slated for the end of this month.

<http://www.indiandefensenews.in/2022/07/this-wacky-wireframe-fighter-replica-is.html>

Tue, 12 Jul 2022

Hawking Defence Offers Solutions to Indian Armed Forces

Chennai-based firm Hawking Defence showcased a number of solutions for the Indian Armed Forces at East Tech 2022, an event held in Kolkata by the Indian Army's Eastern Command on 7 and 8 July. Captain Amber Singh Uban (Retd), company director, told Janes that Hawking Defence is offering the Indian military indigenous solutions including a series of hand-launched micro unmanned aerial vehicles (UAVs), a wearable counter-unmanned aerial system (C-UAS), and a 'Drone Flare System'. Three micro UAVs were displayed by the company, each weighing around 400 g and characterised as being capable of swarming. Capt Uban said all three UAVs can be controlled by a single ground control system.

The Balidan micro UAV is designed as a loitering munition. The UAV can be utilised by an assault team to breach walls or mitigate rogue elements. The UAV has a foldable design and can be easily stowed in the gear of a dismounted soldier. The UAV has a Dash speed of 65 kt, Capt Uban said. Once the Balidan UAV has breached the walls of a target structure, Hawking Defence's surveillance UAV can be launched for sanitising the enclosed space and relaying information about potential threats inside the structure, said Capt Uban. The UAV is capable of operating in a Global Positioning System (GPS)-denied environment with an endurance of 20 minutes. The company's long-range UAV features low audible signature and is capable of broadcasting real-time imagery up to 5 km.

<http://www.indiandefensenews.in/2022/07/hawking-defence-offers-solutions-to.html>

Tue, 12 Jul 2022

Endureair Systems Showcases Electric Vibhram UAV

Noida-based EndureAir Systems, a developer of aerial robotic solutions, displayed an electric version of its Vibhram unmanned aerial vehicle (UAV) at East Tech 2022, an event held in Kolkata by the Indian Army's Eastern Command on 7 and 8 July. According to EndureAir, Vibhram is a multi-purpose UAV developed in collaboration with the Indian Institute of Technology, Kanpur. The gasoline-powered version of Vibhram was also displayed earlier this year at the North Tech Symposium conducted by the Indian Army's Northern Command. Apoorv Avasthy, senior manager of operations at EndureAir Systems, told Janes that the electric version of Vibhram, named E-Vibhram, is a production-ready platform that has been supplied to the state-run Defence Research and Development Organisation (DRDO) for tests.

He said the UAV is listed as capable of carrying out intelligence, surveillance, and reconnaissance (ISR) missions as well as various logistics and humanitarian aid operations. Avasthy said the

maximum take-off weight (MTOW) of E-Vibhram is 11 kg and the UAV can provide an endurance of 45 minutes with a payload of 1 kg. The UAV, being a modular design, features a swappable sensor payload that enables customisation as per the user requirement. Avasthy told Janes that EndureAir has previously supplied the gasoline version of the Vibhram rotary-wing UAV to the DRDO's Asymmetric Technologies laboratory in Hyderabad as well as coal-mining industries.

<http://www.indiandefensenews.in/2022/07/endureair-systems-showcases-electric.html>



Tue, 12 Jul 2022

Why India-Israel Cyber Partnership Worries Pakistan & China

In a recent seminar hosted by a Pakistan-based think tank, it was highlighted yet again that Islamabad is concerned with growing India-Israel cyber cooperation. The discussants stressed greater Iran-Pakistan cooperation in cybersecurity, information technology (IT), and telecom domains, to benefit from mutual experiences, and mutual threat perceptions. This is not the first instance when concern over the India-Israel partnership has been aired in Pakistan. In July 2021, the Foreign Office Islamabad released a statement raising “serious concern over media reports about India allegedly eavesdropping on foreigners, including PM Imran Khan, using Israeli spyware Pegasus”. Without presenting any credible evidence, the statement condemned “India’s state-sponsored, continuing and widespread surveillance, and spying operations in clear breach of global norms of responsible state behaviour”.

Last month, reports over similar concerns in Beijing emerged when the Israeli Defence Minister Benny Gantz made his official visit to India, marking 30 years of India-Israel diplomatic relations and security cooperation. The Israeli minister met his Indian counterpart and discussed strengthening security cooperation through advancing joint military training, and deepening research and development (R&D) in technological and weapons domains. With the ‘Quad West’ (or the West Asia Quad or Quad 2.0) emerging ‘out of the blue’ in 2021, concerns in Beijing and Islamabad have further escalated. The grouping brings together India, Israel, UAE, and the US, to form an “international forum for economic cooperation”. As the quartet seeks to unite technology, resources, and skills to build infrastructure and collaborate in the security domain, new dynamics will shape regional cyber politics.

The Evolving India-Israel Cyber Partnership

India-Israel relations have undergone tectonic changes in the last decade. The relations have increasingly warmed up since the Indian Prime Minister’s historic visit to Israel in 2017, making him the first Indian PM to do so. The two leaders decided to strengthen the Indo-Israeli relationship in various domains, with cybersecurity recognized as a key pillar. Since 2017, partnerships in the start-up ecosystem have grown leaps and bounds between the two nations. The ecosystems in India and Israel are viewed as feeding off each other’s abilities in R&D and

innovation, market potential, and technological prowess. While India presents Israel as a significant market for its products and technology, for India, Israel is an excellent partner in improving capabilities in strategic innovation and product development.

India and Israel signed a Memorandum of Understanding (MoU) on cybersecurity cooperation in January 2018. The MoU aimed to develop cooperation in the field of cyber security, expand Human Resource Development, promote Business-to-Business cooperation, collaborate in the field of cyber security resilience, and facilitate industrial summits. The agreement resulted in several seminars, meetings and visits among industry and government officials. In July 2020, the growing Indo-Israeli cyber partnership resulted in an MoU on Operational Cooperation in the Field of Cybersecurity, between the Indian Computer Emergency Response Team (CERT-In), and Israel's National Directorate of Cybersecurity (INCD). The agreement "laid down the framework for dialogue, cooperation in capacity building, mutual exchanges of best practices in the field, and for facilitating regular exchanges".

More recently in June 2022, the two nations have taken the partnership ahead with an MoU to further deepen defence cooperation "in a manner that harnesses Israel's 'technological and operational experience', together with India's 'extraordinary development and production capabilities'".

Pakistan-China Worries And Response

It is argued that Israel understands that threats emerging from China and Pakistan in the cyber domain could "induce India to purchase Israeli cyber and border-defence technologies". In the recently held meeting between the Indian and Israeli defence ministers, India-China security tensions are said to be among the main issues discussed. On the other hand, Pakistan still does not recognize Israel. The former Pakistani PM Imran Khan had remarked that if Pakistan recognizes Israel at the expense of Palestinian rights, it will have to give up Kashmir as well. In this light, Pakistan has long viewed the Indo-Israeli relationship with contempt. India and Israel have partnered for training Indian special forces in counter-terrorism, and Israel has trained and equipped Indian police officers and security forces in Kashmir with surveillance technology.

In recent years, several reports have highlighted that cyber threats to India are exponentially growing, primarily due to cyberattacks from Pakistan and China. The two have deepened cooperation in cyberspace and it is suggested that Pakistan has emerged as a proxy for China's malicious intent in spreading anti-India propaganda on social media platforms. In a way, India faces a 'two-front war' in cyberspace – based on cyber espionage, disinformation campaigns, and threats to critical infrastructure. But it is not just India that has been troubled by these adversaries in cyberspace. In August 2021, Israel witnessed its first coordinated China-linked cyberattack. According to the international cybersecurity firm FireEye, the attack hit dozens of Israeli private and government organizations. The lead investigator remarked that the goal of cyberattacks originating from China is "not necessarily always to steal the intellectual property" and might be to seek business information to influence decisions.

As India-Israel cyber partnership grows, both on the governmental and industrial levels, an increased frequency of similar cyberattacks can be expected. In August 2021, the hackers attempted to conceal their identities by using Farsi in parts of the code used in the cyberattacks, thus masquerading as Iranians. As Israel-Iran relations remain complex and hostile, this phenomenon shows the exploitation of geopolitical aspects in the cyber domain.

Quad West

With the US-backed Abraham Accords in 2020, Israel's relations with the UAE have normalized, followed by similar peace treaties with Bahrain, Sudan, and Morocco. For Iran and Pakistan, the accords present a strategic threat. For China, the success of these peace agreements marks the US' return to geopolitical prominence in the West Asian region. While Pakistan-UAE relations were strong in the past, Islamabad's attempts towards creating a rival bloc with Turkey, Iran and Malaysia have complicated the relationship. The 'Quad West' benefits from the Abraham Accords, along with India's warm relations with both the UAE and Israel. With the US acting as a facilitator, the West Asian region has once again transformed into an avenue for geopolitical competition between great and emerging powers.

Turkey, Iran, and Pakistan are increasingly wary of the unfolding dynamics of the Quad West. Pakistan is now trying to court Iran into a cyber partnership, which according to Islamabad, will be based on mutual threat perceptions and benefits. While Israel and Iran have engaged in cyberattack campaigns on each other for a long, it has been reported in recent months that Indian government departments are now increasingly facing cyberattacks from Iran-based groups as well.

The Way Ahead

As ties between Tel Aviv and New Delhi evolve, concerns are escalating in Islamabad and Beijing. To counter the emerging Quad West, Pakistan and China now seek partnerships with Iran and Turkey. However, while the Indo-Israeli partnership is based on mutual growth and trust, Pakistan seeks to build partnerships based on fabricated threat perceptions. In West Asia, India has for long balanced its ties with all the stakeholders. India has not abandoned the Palestinian cause and has often voted against Israel in the United Nations. While India-Iran relations have seen ups and downs in recent years, the two traditionally close partners have looked to reset ties. Lastly, there needs to be a consideration that Pakistan's support for terrorism and Chinese cyber campaigns and espionage are well-known phenomena across the world. Instead of courting third countries into partnerships based on fabricated threat perceptions, altering their modus operandi is suggested.

<http://www.indiandefensenews.in/2022/07/why-india-israel-cyber-partnership.html>

THE ECONOMIC TIMES

Wed, 13 Jul 2022

China to Gain Indian Ocean Region Access in India's Backyard

China is giving a major push to infrastructure projects in India's immediate eastern neighbourhood — the Myanmar-Laos-Cambodia-Thailand belt — which will give Beijing unprecedented access to the Indian Ocean Region, often considered New Delhi's sphere of influence. China is actively supporting Myanmar in different sectors, including a lesser-known strategic port project in the eastern part of Shan state (Myanmar) besides a railway project in Laos, ET has learnt. These projects got a major boost during Foreign Minister Wang Yi's recent trip to SE Asia. Located in Tachileik district in the eastern part of Shan state, the strategic port

lies on the Mekong River. It is an important project for China as it will allow it to expand its influence over the Mekong region. Beijing is committed to turning Wan Pong into one of the major regional ports on the Mekong.

The port plays a major role in trade with Laos and will also open the door to connecting with other Greater Mekong Subregion (GMS) countries. Moreover, during the pandemic, Myanmar exported rice to China through the port via Laos. Given Myanmar's unique geographical position in China's grand infrastructure plan, the country is crucial for China to access Bangladesh and Southeast Asia via the Indian Ocean and land border. Chinese official media often described the China-Laos Railway as a new engine to boost economic cooperation between China and the Association of Southeast Asian Nations (ASEAN).

China has proposed six cooperative programmes in Myanmar involving agriculture, water resources, digital economy, aerospace, education and public health, ET has learnt. During his recent meeting with Myanmar's foreign minister Wunna Maung Lwin, Wang said Beijing is willing to strengthen coordination and cooperation with Myanmar. Since the military takeover, China has stepped up its efforts to create a buffer zone along the China-Myanmar Economic Corridor (CMEC). During Wang's trip, China showed a willingness to resume ambitious projects under the CMEC.

This April, China launched a land-sea trade corridor that opened direct access to the Indian Ocean via Myanmar. The new trade corridor travels through four Mekong countries—China (Chongqing), Laos (Vientiane), Thailand (Bangkok) and Myanmar (Yangon)—to the Indian Ocean, according to Chinese media. The Chinese Embassy in Myanmar recently said that the new route is “an important breakthrough in strengthening China-Myanmar trade relations for Beijing”. The route cuts transport time in half. Goods from inland areas in western China can go directly to Southeast Asia and South Asia through Myanmar in a short time. Besides, China's international trade corridors are not complete without the China-Myanmar Railway. Recently, China completed construction of the Dali-Ruili Railway, which is a crucial part of the China-Myanmar International trade route.

<https://economictimes.indiatimes.com/news/defence/china-to-gain-indian-ocean-region-access-in-indias-backyard/articleshow/92836981.cms>



पत्र सूचना कार्यालय
भारत सरकार

विज्ञान एवं प्रौद्योगिकी मंत्रालय

मंगलवार, 12 जुलाई 2022 5:39 अपराह्न

पहचाने गए नए को-डोपेंट बेहतर कार्य करने वाले और अधिक स्थिर सोलर सेल बना सकते हैं

वैज्ञानिकों ने ऐसे को-डोपेंट्स की पहचान की है जो पारदर्शी धातु ऑक्साइड जैसे जैडएनओ₀, आईएन₂ओ₃ और एसएनओ₂ के फोटोवोल्टेक कार्य को बढ़ा सकते हैं, जिससे अधिक कुशल, बेहतर कार्य करने वाले और अधिक स्थिर सोलर सेल क्षमता पैदा हो सकती है। हाल के वर्षों में सोलर सेल प्रौद्योगिकी ने ऊर्जा के स्थायी स्रोत के रूप में जबरदस्त विकास किया है। ऊर्जा उत्पादन और भंडारण समय की आवश्यकता है, किफायती विकल्प विकसित करने के लिए दुनिया भर में अनेक प्रयास किए जा रहे हैं। सोलर पैनल के लिए पसंद की सामग्री के रूप में अंततः पेरोवस्काइट्स एक प्रमुख खनिज है जो सिलिकॉन का स्थान ले लेगा। पेरोवस्काइट सोलर सेल में प्रकाश अवशोषक के रूप में एक पेरोवस्काइट परत होती है, जो एक धातु बैक कॉन्टैक्ट इलेक्ट्रोड के साथ लेपित पारदर्शी कंडक्टिंग ग्लास और होल ट्रांसपोर्ट लेयर (एचटीएल) के साथ लेपित इलेक्ट्रॉन ट्रांसपोर्ट लेयर (ईटीएल) के बीच दबी होती है।

अलगप्पा विश्वविद्यालय समूह के भौतिकी विभाग के एक शोध दल ने सौर सेल उपकरणों की इलेक्ट्रॉन परिवहन परत पर ध्यान केंद्रित किया जो पारदर्शी धातु ऑक्साइड से बना है। पारदर्शी धातु ऑक्साइड जैसे जैडएनओ₀, आईएन₂ओ₃ और एसएनओ₂ ने उत्कृष्ट विद्युत और ऑप्टिकल गुण दिखाए। टीम ने सौर उपकरणों के लिए एक कुशल पारदर्शी धातु ऑक्साइड के रूप में टिन ऑक्साइड (एसएनओ₂) की दक्षता में सुधार करने में प्रभावी उपयोग की भूमिका का पता लगाया। एसएनओ₂ को कम तापमान पर तैयार किया जा सकता है और यह अपेक्षाकृत स्थिर है, लेकिन विद्युत चालकता, ऑप्टिकल पारदर्शिता, और एसएनओ₂ के पेरोवस्काइट के साथ बैंड के जुड़ाव जैसे कार्यात्मक गुण वाणिज्यिक सौर कोशिकाओं के साथ प्रतिस्पर्धा करने के लिए पर्याप्त नहीं हैं।

उन्होंने पाया कि जब एल्युमिनियम (एआई) धातु को एसएनओ₂ जाली में एक संभावित डोपेंट के रूप में शामिल किया जाता है, तो इलेक्ट्रॉन सांद्रता और फिल्म की श्रृंखला प्रतिरोध बदल जाती है, लेंथेनम

(एलए) धातु को शामिल करने से चालकता और फिल फैक्टर- प्राप्य शक्ति के अधिकतम योग का अनुपात बढ़ जाता है। इस तत्व में, एल्यूमीनियम (एआई) और लैंथेनम (एलए) धातुओं का उपयोग एसएनओ₂ में उपयुक्त डोपेंट्स के रूप में किया गया था और एसएनओ₂ की ऑप्टिकल पारदर्शिता, विद्युत चालकता, गतिशीलता, सतह कवरेज और ऊर्जा स्तर में सुधार हुआ। इसने फोटोवोल्टेक कार्य, प्रतिलिपि प्रस्तुत करने की योग्यता और महत्वपूर्ण रूप से सोलर सेल की स्थिरता को भी बढ़ाया।

डोपेंट्स एआई/एलए के एसएनओ₂ को शामिल करके फिल्म सतह कवरेज बढ़ गया था जिसने ऊर्जा स्तर में संशोधन और इलेक्ट्रॉन गतिशीलता को बढ़ाया, जिससे आसान धातु आयनों की डोपिंग रणनीतियों के माध्यम से एसएनओ₂ के कार्यात्मक गुणों में सुधार हुआ। जर्नल ऑफ पावर रिसोर्सिंग में प्रकाशित यह अध्ययन सौर उपकरणों में फोटोवोल्टेक कार्य, दोहराव और स्थिरता को बढ़ाने में कोडोपेंट के लाभों को दिखाता है। तैयार किए गए पेरोवस्काइट फिल्मों के क्रॉस-सेक्शनल मोरफोलॉजी का विश्लेषण फील्ड उत्सर्जन स्कैनिंग इलेक्ट्रॉन माइक्रोस्कोपी का उपयोग करके किया गया था, जबकि एक्स-रे फोटोइलेक्ट्रॉन स्पेक्ट्रोस्कोपी (एक्सपीएस, क्रेटोस एक्सिस सुप्रा) का उपयोग करके मौलिक और रासायनिक विशेषताओं की जांच की गई थी, जो डीएसटी-प्रमोशन ऑफ यूनिवर्सिटी रिसर्च एंड साइंटिफिक एक्सीलेंस(पीयूआरएसई) द्वारा समर्थित है। अध्ययन ने निष्कर्ष निकाला कि वाणिज्यिक सिलिकॉन-आधारित सोलर सेल की तुलना में पेरोवसाइट सामग्री-आधारित सोलर सेल किफायती हैं।

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1841009>

 **The Indian EXPRESS**

Wed, 13 Jul 2022

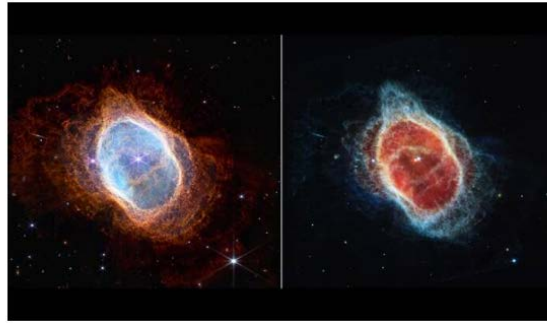
NASA's New Telescope Shows Star Death, Dancing Galaxies

NASA on Tuesday unveiled a new batch of images from its new powerful space telescope, including a foamy blue and orange shot of a dying star. The first image from the \$10 billion James Webb Space Telescope was released Monday at the White House — a jumble of distant galaxies that went deeper into the cosmos than humanity has ever seen. The four additional photos released Tuesday included more cosmic beauty shots. With one exception, the latest images showed parts of the universe seen by other telescopes. But Webb's sheer power, distant location off Earth and use of the infrared light spectrum showed them in new light.

“Every image is a new discovery and each will give humanity a view of the universe that we've never seen before,” NASA Administrator Bill Nelson said Tuesday, rhapsodizing over images showing “the formation of stars, devouring black holes.” Webb's use of the infrared light spectrum allows the telescope to see through the cosmic dust and “see light from faraway light from the corners of the universe,” he said. “We've really changed the understanding of our universe,” said European Space Agency director general Josef Aschbacher. The European and Canadian space agencies joined NASA in building the powerful telescope.

On tap Tuesday:

— The Southern Ring Nebula, which is sometimes called “eight-burst.’ About 2,500 light-years away, it shows an expanding cloud of gas surrounding a dying star. A light-year is 5.8 trillion miles.



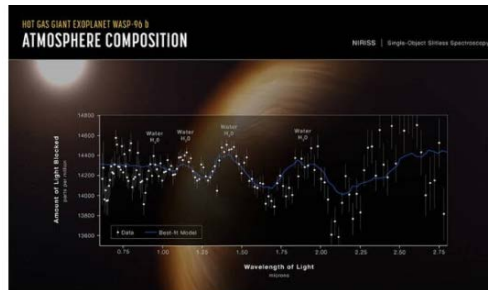
— Carina Nebula, one of the bright stellar nurseries in the sky, about 7,600 light-years away.



— Five galaxies in a cosmic dance, 290 million light-years away. Stephan’s Quintet was first seen 225 years ago in the constellation Pegasus.



— A blueish giant planet called WASP-96b. It’s about the size of Saturn and is 1,150 light-years away. A gas planet, it’s not a candidate for life elsewhere but a key target for astronomers.



The images were released one-by-one at an event at NASA’s Goddard Space Center that included cheerleaders with pompoms the colour of the telescope’s golden mirrors.

The world’s biggest and most powerful space telescope rocketed away last December from French Guiana in South America. It reached its lookout point 1 million miles (1.6 million kilometers) from Earth in January. Then the lengthy process began to align the mirrors, get the infrared detectors cold enough to operate and calibrate the science instruments, all protected by a sunshade the size of a tennis court that keeps the telescope cool. Webb is considered the successor to the highly successful, but aging Hubble Space Telescope.

<https://indianexpress.com/article/technology/science/nasa-new-telescope-shows-star-death-dancing-galaxies-8025416/lite/>

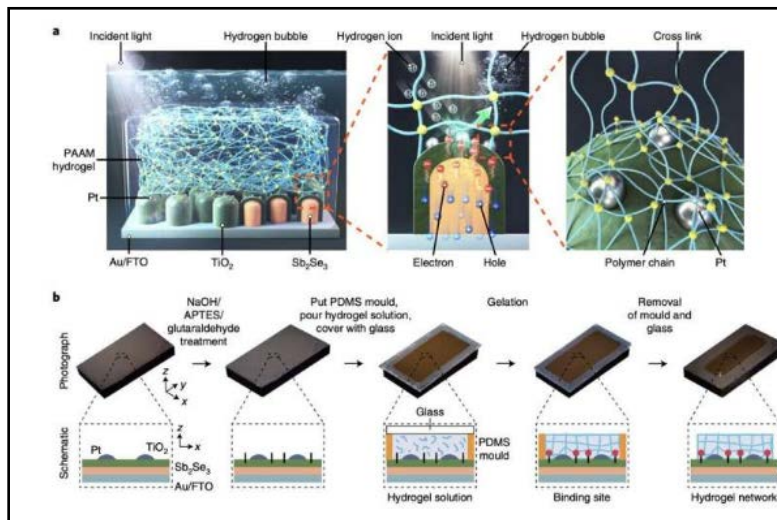


Tue, 12 Jul 2022

A Strategy to Stabilize Water-Splitting Photoelectrodes for Solar-To-Hydrogen Production

In recent years, engineers have been trying to devise new technologies to produce and store energy more sustainably, with the hope of overcoming the global reliance on fossil fuels and to fight climate change. A solution that has attracted much attention is the conversion of solar energy into hydrogen through a process known as water splitting. Water splitting is a chemical process through which water can be broken down into its two main components: hydrogen and oxygen. Photoelectrochemical (PEC) water splitting processes would enable the production of green hydrogen from sunlight and water.

To be implemented on a large-scale, PEC devices should not be too expensive and should have a long lifetime. Developing devices that are stable over time using widely available and affordable materials, however, has so far proved challenging. In fact, past studies have showed that photoelectrodes made of materials that are plentiful on Earth, such as light-absorbing semiconductors, tend to corrode easily when they are exposed to sunlight. This significantly hinders the development of PEC devices based on these abundant and more affordable materials.



Highly permeable and transparent device-on-top hydrogel protector of the PEC device. a, Schematic of PAAM hydrogel-protected Pt/TiO₂/Sb₂Se₃ photocathode for PEC water splitting under illumination.

Researchers at Yonsei University have recently introduced a new strategy that could increase the stability of photoelectrodes in PEC water-splitting devices. This method, introduced in a paper published in *Nature Energy*, entails the use of a hydrogel-based and transparent layer that can protect photocathodes (i.e., negatively charged electrodes that emit electrons when exposed to radiant energy light). "The lifetime of photoelectrochemical devices is hampered by the severe photocorrosion of semiconductors and instability of photocatalysts," Jaiwan Tan and his colleagues wrote in their paper. "We report a strategy for stabilizing photoelectrochemical devices that uses a polyacrylamide hydrogel as a highly permeable and transparent device-on-top protector."

The permeable and transparent protective layer designed by Tan and his colleagues draws inspiration from photosynthetic marine plants. These plants, including seaweed, have cells that are covered in a nano-porous and protective hydrogel. This hydrogel can prevent the deformation and rupture of the cells that may result from physical contact with forces and organisms in the aquatic environment. When seaweed cells are coated with this hydrogel, they can transmit light and retain their water levels. The researchers tried to create a similar protective layer that could prevent the corrosion of photoelectrodes, thus enhancing the stability of PEC devices. They tested this layer on a photocathode made of antimony triselenide (Sb₂Se₃).

"A hydrogel-protected Sb₂Se₃ photocathode exhibits stability over 100 h, maintaining ~70% of the initial photocurrent, and the degradation rate gradually decreases to the saturation level," the researchers wrote in their paper. "The structural stability of a Pt/TiO₂/Sb₂Se₃ photocathode remains unchanged beyond this duration, and effective bubble escape is ensured through the micro gas tunnel formed in the hydrogel to achieve a mechanically stable protector."

Initial tests carried out by the researchers yielded very promising results, suggesting that their protective hydrogel could prevent the degradation and corrosion of Sb₂Se₃-based photodetectors for water-splitting applications. Tan and his colleagues also showed that their hydrogel protector is compatible with electrolytes that have a broad range of pH values, while always using a SnS photocathode and a BiVO₄ photoanode with a lifetime of ~500 hours. In the future, the

hydrogel-based protector introduced in their paper could be used to protect photocathodes inside various PEC devices for water-splitting. This could facilitate the large-scale implementation of these devices, ultimately helping to fight climate change.

More information: Jeiwan Tan et al, Hydrogel protection strategy to stabilize water-splitting photoelectrodes, Nature Energy (2022). [DOI: 10.1038/s41560-022-01042-5](https://doi.org/10.1038/s41560-022-01042-5)

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General News

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MHA Adopts Modified Policy for Appointment on Compassionate Ground

The Union Home Ministry has adopted a modified policy for compassionate appointment to the next of kin of its employees who die in harness or retire on medical grounds, leaving their families in penury. The policy is expected to benefit all employees working under the Union Home Ministry, including those belonging to the central paramilitary forces which often suffer casualties due to terrorist attacks, fratricidal clashes, and suicides among others. "The object of the compassionate appointment scheme is to grant appointment on compassionate grounds to a dependent family member of a government servant dying in harness or who retired on medical grounds, thereby leaving his family in penury and without any means of livelihood and relieve the family of the government servant concerned from financial destitution and help it get over the emergency," according to the home ministry guidelines.

The fresh guidelines will bring more transparency and objectivity in the process of ompassionate appointment, an official said. "Transparency and objectivity are the foremost aspects of the scheme for compassionate appointment. A holistic assessment of the financial condition of the family has to be made taking into consideration factors like presence of earning member(s), size of family, age of children and the financial needs of a family," the guidelines said. To give effect to this, various measures like chalking out the role of the welfare officer, adopting a point-based merit scheme for assessing applications, indexing each application with a unique ID and putting out minutes of a meeting of the screening committee, to be formed, in the public domain were stipulated. The welfare officer will assist the dependent family of the deceased government employee in getting an appointment on compassionate grounds.

The applicant would be called in person at the very first stage and would be advised in person about the requirements and formalities to be completed. The applications for compassionate appointment shall be considered by a committee consisting of three officers -- one chairman and two members -- of the rank of deputy secretary or director in the ministry. The recommendation of the committee shall be placed before the competent authority for a decision. The committee will assess the suitability of a candidate by considering various aspects like the total annual income of the family, the number of dependent minor children, if one or more persons amongst the dependent family members are disabled, the number of unmarried daughters, leftover service of the deceased government employee besides others. The new policy is in line with the guidelines issued by the Department of Personnel and Training.

<https://economictimes.indiatimes.com/news/india/mha-adopts-modified-policy-for-appointment-on-compassionate-ground/articleshow/92822985.cms>

