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Super Hornet clears ski-jump test: What Navy will consider before clinching any deal with Boeing

Earlier this month, reports stated that the Navy was seeking to combine its multi-role carrier-based fighter jet procurement tender along with the Indian Air Force's own tender for 114 jets

Key Highlights

- *The INS Vikramaditya and INS Vikrant have been built using the Short Take-Of But Arrested Recovery (STOBAR) where fighter aircraft go airborne via a ski-jump slope at the end of the flight deck*
- *Boeing is hopeful that, in displaying that its Super Hornet can take to the skies from India's aircraft carriers, it will become the front-runner to win the Navy's procurement tender that Dassault, with its Rafale aircraft, is also competing for*
- *The DRDO, along with the Aeronautical Development Agency (ADA), are currently in the process of developing an indigenous Twin Engine Carrier-Based Deck Fighter (TEBDF) specifically to meet the specifications of India's aircraft carriers*

On Monday, American aircraft manufacturer Boeing announced that its F/A-18 Super Hornet fighter successfully completed ski-jump trials, effectively paving the way for its use by the Indian Navy's aircraft carriers.

Boeing has been testing its Super Hornet fighter using a ground-based ski-jump at the Naval Air Station near Patuxent River in Maryland so as to provide assurances to the Indian Navy that it will be suitable for induction onto the INS Vikramaditya, the INS Vikrant expected to be commissioned by 2022, and the INS Vishal which currently remains at the drawing board stage.

The Navy was scheduled to send a team to visit the Naval Air Station earlier this year but the trip had to be deferred due to the COVID-19 pandemic.

The INS Vikramaditya and INS Vikrant have been built using the Short Take-Of But Arrested Recovery (STOBAR) where fighter aircraft go airborne via a ski-jump slope at the end of the flight deck. However, US Navy aircraft carriers that already have fleets of the Super Hornets use Catapult Assisted Take-Off Arrested Recovery (CATOBAR) platforms where aircraft are accelerated through steam or electromagnetic catapults.

Boeing is hopeful that, in displaying that its Super Hornet can take to the skies from India's aircraft carriers, it will become the front-runner to win the Navy's procurement tender that Dassault, with its Rafale aircraft, is also competing for.

Where do complications arise from?

However, Boeing's latest success may not be enough for it to clinch a deal with the Indian Navy. Earlier this month, reports stated that the Navy was seeking to combine its multi-role carrier-based



Boeing's F/A-18 Super Hornet fighter jet. | Photo Credit: Twitter

fighter jet procurement tender along with the Indian Air Force's own tender for 114 jets that is already underway.

This move comes on the back of a reported decision to reduce the number of jets to be procured in light of the indigenous development proposal put forth by India's Defence Research and Development Organisation.

The DRDO, along with the Aeronautical Development Agency (ADA), are currently in the process of developing an indigenous Twin Engine Carrier-Based Deck Fighter (TEBDF) specifically to meet the specifications of India's aircraft carriers. Navy officials have expressed hopes that the TBDRF would enter service in the early 2030s.

The Navy, in 2017, floated a Request For Information (RFI) globally for the procurement of 57 fighter jets. However, with the indigenous jet now under development, coupled with budgetary restrictions, it has sought to reduce the number of jets to be procured from 57 to 36. A final decision is, reportedly, yet to be made though.

The decision to combine its tender with that of the IAF's also attracts further complications. While the IAF was seeking both, single and twin-engine fighters, the Navy's stated requirement is solely that of twin-engine jets.

<https://www.timesnownews.com/india/article/super-hornet-clears-ski-jump-test-what-navy-will-consider-before-clinching-any-deal-with-boeing/697763>



Wed, 23 Dec 2020

Now India has 3rd biggest Hypersonic Wind Tunnel in the World

Defence Minister Rajnath Singh on Saturday inaugurated the advanced Hypersonic Wind Tunnel (HWT) test facility here, making India the third country after the US and Russia to have such a facility. The state-of-the-art HWT Test facility is “pressure vacuum-driven enclosed free jet facility having nozzle exit diameter of 1 metre and will simulate Mach No 5 to 12 (Mach represents the multiplication factor to the speed of sound)”, a defence release said.

After America and Russia, India is the third country to have such a large facility in terms of size and operating capability, it said. It is an indigenous development and an outcome of synergistic partnership with Indian industries.

The facility has the capability to “simulate hypersonic flow over a wide spectrum and will play a major role in the realization of highly complex futuristic aerospace and defence systems,” the release said.

Singh, who visited the Defence Research and Development Organisation’s Dr APJ Abdul Kalam Missile Complex here during his two-day visit to the city, urged the DRDO’s scientists to make India a “Super Military Power”, thereby making India a Super Power, a defence release said.

He appreciated the contributions of DRDO Young Scientist Labs and said the DRDO needs to focus on next generation needs, including cyber security, space and artificial intelligence and evolve roadmaps.

Union Minister of State for Home G Kishan Reddy and DRDO Chairman G Satheesh Reddy accompanied Singh during the visit. The release said Lab Directors, Cluster DGs and Programme Directors briefed the dignitaries about the ongoing projects and technological developments.



Hyderabad-based DRDO labs showcased various indigenously developed systems and technologies in wide ranging areas including missiles, avionics systems, advanced materials, electronic warfare, quantum key distribution technology, directed energy weapons, Gallium Arsenide and Gallium Nitride technology capabilities. Two anti-drone technologies were demonstrated by DRDO labs to Singh, it said.

The Defence Minister, who addressed the DRDO fraternity, applauded the recent series of successful missions and technological achievements by various clusters of the organisation.

<https://www.defenceaviationpost.com/2020/12/now-india-has-3rd-biggest-hypersonic-wind-tunnel-in-the-world/>



Wed, 23 Dec 2020

DRDO Chairman visits ESIC Medical College in Hyd, inspects COVID facilities

Hyderabad: The Chairman of DRDO and secretary of the Department of Defence (R&D), Dr G. Sathesh Reddy, along with M.S.R Prasad, the director-general of DRDO, visited ESIC Medical College in Sanathnagar, Hyderabad, on 22 December to inspect its COVID-19 preparedness and interact with frontline health care givers.

ESIC Medical College has been at the forefront in the fight against the novel coronavirus and has been working in virology diagnostics and COVID care. It has collaborated with organisations like DRDO, IITs, TIFR, NIPER, and the University of Hyderabad to tackle COVID-19 and has set up a first-of-its-kind mobile virology diagnostic and research laboratory.

So far, 6,0117 Rt-PCR samples have been processed at the mobile VRDL lab. Several indigenous, cost-effective, innovative devices to help the COVID-19 patients have been designed by ESIC Medical College in collaboration with DRDO.

During his visit, Dr. Reddy checked exhibits of the equipment made in collaboration with DRDO and the mobile VRDL lab installed at the college. He was briefed about various functional COVID-19 care facilities at the institute and the future plans. He was told that an independent continuous oxygen supply facility and negative ICUs are in the process of being set up at the hospital.

<https://newsmeter.in/nation/drdo-chairman-visits-esic-medical-college-in-hyd-inspects-covid-facilities-672065>



Centre appoints Vice Admiral Rajat Datta as DG Armed Forces Medical Service

New Delhi: Surgeon Vice-Admiral Rajat Datta has been appointed as the new Director-General of Armed Forces Medical Services and would be the seniormost medical officer of the armed forces in India.

He will replace incumbent Lieutenant General Anup Bannerjee and assume the office on January 1, 2021. He will have a tenure of 23 months. Datta is an alumnus of Armed Forces Medical College, Pune and after completing his MBBS in 1982, was commissioned into AMC on 27 Dec 1982.

Thereafter, he went on to do his post-graduate studies in General Medicine viz MD and DNB from Bangalore University and National Board of Examinations respectively in 1990 followed by Doctorate of Medicine (DM) in Cardiology from Pune University in 1998. He is a Fellow of Society of Cardiovascular Angiography and Interventions USA. He also holds the coveted appointment of Cardiologist to the President of India.

He is a committed doctor, renowned for his professional competence and skills. He has been the Professor of Cardiology as well as an examiner for several Universities and Post Graduate Medical Institutions in India such as Maharashtra University of Health Sciences, Banaras Hindu University, JIPMER, National Board of Examination. Additionally, he is also the examiner for the Dept of Biotechnology at IIT Roorkee.

Over the past three and a half decades, besides tenantry the usual appointments in several military hospitals, he has also served as Classified Specialist (Medicine and Cardiology) in 151 Base Hospital and Command Hospital (WC) Chandimandir. Thereafter as Sr Advisor and later Consultant (Medicine and Cardiology), he was the Professor and Head of Department of Cardiology, at both Army Institute of Cardio-Thoracic Sciences, Pune and Army Hospital (R&R) Delhi Cantt.

He had been holding the prestigious appointment of Comdt AFC, New Delhi where he was Physician to the Army Chief. He was also Addl DGMS (Army) New Delhi. He had been holding the appointment of Comdt, CH (CC) Lucknow, MG Med, HQ Central Command and Comdt, Army Hospital (R&R) Delhi Cantt. In all these administrative appointments, he continued his work as a cardiologist and has the distinct honour of being one of the pioneers in the Armed Forces in Transcatheter Aortic Valve Replacement (TAVR) procedures for which he has been endorsed as a solo-implanter with one the largest series of successful cases in the country.



Surgeon Vice-Admiral Rajat Datta, Photo Credit: ANI

Prior to assuming the present appointment, the Flag Officer held the prestigious appointment of Director General Medical Services (Navy).

For his dedication and devotion to the service, he was awarded VSM in 2005, SM (D) in 2014 and AVSM in 2017. He has also been awarded GOC-in-C (WC) Commendation Card and GOC-in-C (SC) Commendation Card in 2006 and 2008 respectively. The Flag Officer is appointed as Honorary Surgeon to The President of India with effect from 01 Feb 2020. Immensely popular among his peers and juniors, he was selected as Col Comdt of the AMC.

Maj Gen Rashmi Datta, VSM, spouse, is MG (Med) HQ Delhi Area and they are blessed with one son, Maj Shivesh Datta who is proudly following the footsteps of his illustrious parents in the AMC at 404 Fd Hosp.

<https://www.freepressjournal.in/india/centre-appoints-vice-admiral-rajat-datta-as-dg-armed-forces-medical-service>

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Wed, 23 Dec 2020

GSL to build 12 advanced patrol craft for Army

Panaji: The Indian Army's capabilities to take on the Chinese People's Liberation Army at Pangong Tso will be augmented by Goa Shipyard Limited as the defence sector shipyard has emerged as the lowest bidder in a contract to build 12 high altitude super speciality patrol crafts.

The boats, said a source, will be used to monitor and counter China's activities within the waters of Pangong Tso lake in eastern Ladakh.

"Goa Shipyard Ltd has emerged as L1 (lowest bidder) for construction of 12 advanced fast patrol crafts for Indian Army through competitive bidding," said a GSL official. "The craft will be a new product for us and based on an in-house design."

Pangong Tso has emerged as a focus point in the ongoing stand-off between the Chinese PLA and the Indian Army since May. China has mobilized troops and vessels to patrol the waters of the Pangong Tso and prior to winter setting in, blocked Indian patrols.

The Indian Army already has 17 boats purchased from USA for quick-reaction team which patrol the lake located at an altitude of 13,900-feet. However, given China's aggressive posture, the need has been felt to further augment India's capabilities to match the heavier Type-928B patrol boats being used by the People's Liberation Army.

"The Indian Army floated a tender a few months earlier for high altitude super speciality craft and GSL emerged as the lowest bidder. These craft will be fast and agile and will benefit the Indian Army," said a source.

There have been incidents of aggressive manoeuvres by patrolling Chinese vessels in the lake, including instances of PLA ramming their boats into the Indian boats. The 134-km-long Pangong lake, two-thirds of which is controlled by China as it extends from Tibet to India, has been a major flashpoint between the two countries over the years.

<https://timesofindia.indiatimes.com/city/goa/gsl-to-build-12-advanced-patrol-craft-for-army/articleshow/79887770.cms>

Intelligence lessons from Ladakh stand-off

For Indian strategists, the limits of intelligence should mean a greater focus on deterrence strategy

By Ameya Pratap Singh

Chinese intrusions in Eastern Ladakh earlier this year have provoked a review of India's intelligence apparatus. After all, how could the PLA mobilise and deploy a significant number of troops from its interior for an ingress across a heavily militarised border without a timely Indian counter-response? All signs point to an intelligence failure. Understandably, a number of analysts have reiterated the need for reforming India's intelligence apparatus that can plug loopholes and avoid a similar ill-fate in the future. But, all these policy suggestions — while valuable in some sense — rest on an erroneous assumption: Intelligence can be made full-proof if certain operational and organisational infirmities are overcome. I argue, it cannot.

M K Narayanan, former National Security Adviser, argues that it is “axiomatic that leaders make better decisions when they have better information”. The Chinese made no effort to conceal PLA troop mobilisations in Pangong Tso and Hotsprings-Gogra and so there was no question of them having evaded India's high-quality imagery intelligence (IMINT) and signals intelligence (SIGINT) capabilities. He concludes, therefore, that the intelligence failure occurred at the “interpretation” or “analysis” stage. Indian intelligence analysts failed to “decipher China's intentions in time”. On this front, he criticises the decision of the National Security Council Secretariat (NSCS) to dismantle the Joint Intelligence Committee (JIC), and laments the lack of China experts in India's premier foreign intelligence agency, R&AW.



While India's forces cannot constantly remain in a heightened state of military preparedness, a base level of vigilance in low-threat situations moving forward is advisable.

Richard K Betts in his oft-cited paper from 1978 agrees with Narayanan's argument that intelligence failures are seldom the result of shortcomings in tasking or data collection. Rather, they are mainly produced due to mistaken analysis on behalf of intelligence analysts or political elites. However, how will more “expert” information or a JIC resolve this issue?

Firstly, more often than not, the problem is too much information rather than too little. While regional expertise would improve the quality of intelligence processing, it is not a panacea for good political judgement. In fact, China experts are still struggling to explain Beijing's intentions. For example, it was hardly predictable that China, in the midst of facing global censure for mishandling the outbreak of a pandemic, a slowing domestic economy, and after two (reasonably successful) informal summits with their Indian counterparts in Wuhan and Chennai, would risk escalation on the border and yield India's goodwill for a few inches of un-inhabited land in Ladakh. If Beijing planned to use strategic surprise to catch New Delhi off-guard when the latter would least expect an ingress, more China expertise would not have proven remedial. Historically, as Taylor Fravel has argued, China has been more “compromising” in moments of domestic duress and international pressure. The wolf-warriors are an unpredictable and erratic turn in Chinese foreign policy whose proximate causes are still unclear.

Secondly, as Betts has argued, “altering the analytic system” (such as setting up bodies for intelligence processing such as the JIC) does not guarantee better judgement. In response to intelligence failures, the reflexive impulse is often to push “recommendations for reorganization and changes in operating norms” (see Kargil Review Committee Report). As Sumit Ganguly and

Frank O'Donnell claim, increasing accountability and parliamentary oversight could have potentially provided “meaningful external scrutiny” of Indian intelligence findings and prevented Chinese aggression. These measures can indeed be useful in enabling faster intelligence sharing and processing, both forward and backward in the chain of command. But, they are only marginally effective since we do not have a full-proof framework for “accurate” intelligence processing.

Betts says that there is one primary reason behind this. As was shown above, intelligence findings can contradict strategic estimates or assumptions leading to their dismissal. This is why “wishful thinking, cavalier disregard of professional analysts, and, above all, the premises and preconceptions of policy makers” are most often at fault for intelligence failures. This is not because analysts or leaders are lazy or incompetent, rather it is because they are cognitive misers and often subjected to the pressures of time-sensitive decision-making. For example, when interpreting an excess of mutually-contradictory data inputs, analysts’ risk assessments can either oversimplify reality or be too vague to be actionable. In response to ambiguous information, leaders are in turn likely to rely on intuition, beliefs, images etc. since there is “usually some evidence to support any prediction”. Regardless of how many layers of scrutiny are institutionalised and how accountable and robust the intelligence apparatus is, such limits of human cognition and the complexities of the intelligence process cannot be eliminated. Even if leaders became self-aware of their prejudices and biases they would struggle to consistently internalise this.

In light of these circumstances, it is tempting to rely on “worst-case assumptions”. It could be argued that if there is any cause for apprehension, analysts should simply assume the worst and proceed with extreme caution. However, this too is unsustainable. Firstly, constantly preparing and mobilising for worst-case outcomes would be prohibitively expensive for a recession-hit Indian state. Secondly, with an increase in false alarms (since at least some of the worst-case intelligence will be dubious) there is a risk of routinisation eroding sensitivity to actual crisis situations (cry-wolf syndrome). Thirdly, precautionary mobilisation can lead to counter-mobilisations and a security dilemma spiral. For example, in response to doubtful reports that Pakistan was planning an offensive in Jammu and Kashmir to isolate it from the rest of India, Jawaharlal Nehru decided to mobilise Indian troops along the Punjab and Kashmir borders in 1951. This led to counter-mobilisation by Pakistan. At the time, the CIA reported that “almost 90 per cent of India’s and 70 per cent of Pakistan’s ground forces were deployed against each other”. This crisis only passed with the assassination of Pakistan’s Prime Minister, Liaquat Ali Khan, in October 1951. Worst-case thinking could cause avoidable escalation, more frequent crisis situations, and even accidental war.

Assessments of India’s intelligence apparatus, therefore, require reviewing how many external threats were foiled in comparison to instances of intelligence failure. Instead of ritualistically blaming its intelligence agencies after every let-down, Indian leaders need to aspire towards a suitable ratio of success. Since only cases of failure become public knowledge, such calculations are a difficult task for non-governmental scholars or commentators. This does not mean external recommendations for improving the analytic system should be ignored. I only suggest — in light of what I have discussed here — that there should be greater recognition, both amongst policymakers and domestic audiences, of the implausibility of “accurate” intelligence processing.

Does this mean India should, as Betts concluded in his article, “live with fatalism”? Not entirely. Firstly, in both, the Kargil crisis and the current stand-off on the Sino-Indian border, India’s adversaries purposefully chose moments when expectations of aggression would be minimal. While India’s forces cannot constantly remain in a heightened state of military preparedness, a base level of vigilance in low-threat situations moving forward is advisable. Learning from each intelligence failure is essential. Secondly, for Indian strategists, the limits of intelligence should mean a greater focus on deterrence strategy. As I have argued elsewhere, if India cannot rely on its intelligence to counter Chinese moves on the border in every situation (necessary for deterrence by

denial), it must have effective back-up options for deterrence by punishment (such as a larger and better-equipped counter-offensive Mountain Strike Force).

(The writer is a DPhil (PhD) student in Area Studies (South Asia) at the University of Oxford)

<https://indianexpress.com/article/opinion/columns/india-china-ladakh-lac-army-7115578/>

नवभारत टाइम्स

Wed, 23 Dec 2020

क्या भारतीय नौसेना में शामिल होगा अमेरिकी FA-18

सुपर हॉर्नेट लड़ाकू विमान? जानें कितना है ताकतवर

पाकिस्तान और चीन से बढ़ते तनाव के बीच भारत अपने सामरिक शक्ति में तेजी से इजाफा कर रहा है। इस दौरान भारतीय नौसेना प्रमुख एडमिरल करमबीर सिंह ने देश के तीसरे विमानवाहक पोत (एयरक्राफ्ट कैरियर) की आवश्यकता का उल्लेख किया है। भारतीय नौसेना में अभी एक ही एयरक्राफ्ट कैरियर आईएनएस विक्रमादित्य शामिल है, जबकि दूसरा एयरक्राफ्ट कैरियर आईएनएस विक्रान्त का अभी निर्माण जारी है।

By Priyesh Mishra

पाकिस्तान और चीन से बढ़ते तनाव के बीच भारत अपने सामरिक शक्ति में तेजी से इजाफा कर रहा है। इस दौरान भारतीय नौसेना प्रमुख एडमिरल करमबीर सिंह ने देश के तीसरे विमानवाहक पोत (एयरक्राफ्ट कैरियर) की आवश्यकता का उल्लेख किया है। भारतीय नौसेना में अभी एक ही एयरक्राफ्ट कैरियर आईएनएस विक्रमादित्य शामिल है, जबकि दूसरा एयरक्राफ्ट कैरियर आईएनएस विक्रान्त का अभी निर्माण जारी है। ऐसे में भारतीय नौसेना को इन एयरक्राफ्ट कैरियर से ऑपरेट करने के लिए लड़ाकू विमानों की आवश्यकता है। जिसके लिए अमेरिकी हथियार निर्माता कंपनी बोइंग, रूसी मिगोयन और दसॉल्ट के बीच कड़ी प्रतिद्वंद्विता बनी हुई है।

नौसेना के लिए क्यों खरीदना पड़ रहा है लड़ाकू विमान

वर्तमान में भारत अपने एयरक्राफ्ट कैरियर आईएनएस विक्रमादित्य से रूस के 26 मिग-29के को ऑपरेट करता है। बाकी के लगभग 14 मिग-29 के विमानों को गोवा में भारतीय नौसेना के बेस आईएनएस हंसा पर तैनात हैं। ऐसे में अगर भारत का स्वदेशी एयरक्राफ्ट कैरियर आईएनएस विक्रान्त 2022 तक सर्विस में आता है तो उसे नए लड़ाकू विमानों की जरूरत होगी। अभी तक मान्यता यह थी कि आईएनएस विक्रान्त में भी विमानों को उड़ाने के लिए स्की जंप फैसिलिटी ही उपलब्ध है। ऐसे में अगर कोई भारी फाइटर जेट आता है तो उसके लिए इस एयरक्राफ्ट कैरियर के ऊपर से उड़ान भरने में परेशानी होगी।

बोइंग के सुपर हॉर्नेट ने पास किया स्की जंप टेस्ट

इसी दावे को झुठलाने और भारतीय एयरक्राफ्ट कैरियर के लिए अपनी उपयोगिता साबित करने किए बोइंग ने एफ/ए-18 सुपर हॉर्नेट लड़ाकू विमान ने सफलतापूर्वक स्काई-जंप लांच किया। जिसमें लड़ाकू विमान ने कम दूरी पर ऊपर की ओर घूमते वक्राकार (अपवर्ड-कर्व्ड) रैंप से उड़ान भरी। बोइंग कंपनी के



क्या भारतीय नौसेना में शामिल होगा अमेरिकी FA-18 सुपर हॉर्नेट लड़ाकू विमान? जानें कितना है ताकतवर

अधिकारी अंकुर कनगलेकर ने बताया कि वाशिंगटन में भारतीय दूतावास के अधिकारियों ने इस परीक्षण को देखा।

इन लड़ाकू विमानों में से किसी एक को खरीदेगा भारत

भारतीय नौसेना ने 2018 में अपने विमान वाहक पोतों के लिए 57 मल्टीरोल लड़ाकू विमानों को खरीदने की प्रक्रिया शुरू की थी। इन विमानों में स्काई-जंप उड़ान तकनीक का इस्तेमाल किया जाता है। वर्तमान में छह जंगी हवाई जहाज हैं जो स्की जंप तकनीकी वाले एयरक्राफ्ट कैरियर से ऑपरेट हो सकते हैं। इनमें राफेल (दसॉल्ट, फ्रांस), एफ/ए-18 सुपर हॉर्नेट (बोइंग, अमेरिका), मिग-29के (रूस), एफ-35बी और एफ-35सी (लॉकहीड मार्टिन, अमेरिका) और ग्रिपेन (साब, स्वीडन) शामिल हैं।

कितना शक्तिशाली है बोइंग सुपर हॉर्नेट लड़ाकू विमान

अमेरिका ने अपनी ताकत का प्रतीक माने जाने वाले 12 एयरक्राफ्ट कैरियर्स पर एफ/ए-18 सुपर हॉर्नेट लड़ाकू विमानों को बड़ी संख्या में तैनात कर रखा है। ये विमान अमेरिकी नेवी के ताकत की रीढ़ भी माने जाते हैं। इसी की मदद से अमेरिका ने सीरिया, लीबिया, ईराक और अफगानिस्तान पर भीषण बमबारी कर दुश्मनों को घुटनों पर ला दिया था। ये विमान 1995 से अमेरिकी नौसेना, कुवैत और ऑस्ट्रेलियाई नौसेना में तैनात हैं और सेवा दे रहे हैं।

4000 किलो के बम लेकर उड़ सकता है यह विमान

इस विमान का इंटीग्रेटेड नेटवर्क सिस्टम जमीन पर मौजूद सैनिकों से बेहतर संवाद स्थापित करने की क्षमता प्रदान करता है। इस विमान में 11 हॉर्ड पॉइंट दिए गए हैं, जिसके जरिए यह 4000 किलोग्राम के एयर टू एयर और एयर टू ग्राउंड मिसाइलों को लेकर उड़ान भर सकता है। इसमें लगे रडार इस विमान को और घातक बनाते हैं। यह विमान मैक 1.6 की गति से उड़ सकता है।

<https://navbharattimes.indiatimes.com/world/america/will-indian-navy-buy-boeing-fa-18ef-super-hornet-fighter-jet-know-all-specifications-and-fire-power/articleshow/79853867.cms?story=5>

Business Standard

Wed, 23 Dec 2020

India, Japan discuss regional security; call for free, open maritime order

India and Japan have regularly been discussing the evolving situation in the Indo-Pacific, and have signalled to expand cooperation to deal with common challenges

New Delhi: In the backdrop of China's growing assertiveness in the region, India and Japan on Tuesday strongly opposed any attempts to "unilaterally change" the status quo by "coercion" or any activities that escalate tension and highlighted the importance of a free and open maritime order.

Issues relating to the regional situation figured during a telephonic conversation between Defence Minister Rajnath Singh and his Japanese counterpart Nobuo Kishi, according to a statement by Japan's defence ministry.

"The two ministers also exchanged views on regional situations, including the East China Sea and the South China Sea, and reaffirmed their continued close cooperation," it said.

"In this context, the ministers affirmed their intention to continue exchanging views in light of the current events occurring in the region and concurred in



sending a clear message that they strongly oppose any attempts to unilaterally change the status quo by coercion or any activities that escalate tension," it added.

A readout issued by India's defence ministry said the two ministers exchanged views on the security situation in the region and the need for a free and open maritime order based on the rule of law.

"The ministers reviewed the progress on various bilateral defence cooperation initiatives and expressed commitment to further elevate engagements between the armed forces under the framework of the India-Japan special strategic and global partnership," it said.

Notwithstanding the coronavirus pandemic, China has been resorting to military assertiveness in the South China Sea, East China Sea and along the Line of Actual Control in eastern Ladakh, triggering mounting global concerns and criticism.

India and Japan have regularly been discussing the evolving situation in the Indo-Pacific, and have signalled to expand cooperation to deal with common challenges.

In September, the two countries signed a landmark agreement that allowed their militaries to access each other's bases for logistics support. The pact was signed in the backdrop of growing concerns over China's military muscle flexing in the region.

The Indian readout said the ministers agreed that in the recent past both countries have made "notable strides" in defence industry and technology cooperation and looked forward to even greater cooperation in the field.

"They expressed satisfaction at the signing of the agreement on reciprocal provision of supplies and services in further promoting defence ties between the two countries," it said.

In a tweet, Singh said India is committed to further elevate engagements with Japan.

"We expressed satisfaction at the ongoing defence cooperation between the two countries. India is committed to further elevate engagements with Japan under the Special Strategic & Global partnership framework," he said.

During the conversation, Singh congratulated Kishi on his appointment as minister of defence and expressed satisfaction at the ongoing defence cooperation between the two countries in spite of the COVID 19 pandemic.

The Indian readout said both ministers welcomed the successful conduct of the Malabar exercise last month as well as the bilateral naval drill between Indian and Japanese navies in September.

The Japanese defence ministry also said Singh and Kishi highlighted the importance of a free and open maritime order based on the rule of law.

Last month, India hosted the Malabar exercise. Following India's invitation Australia also participated in the exercise effectively making it a drill by all the Quad member nations.

The Quad, comprising India, the US, Australia and Japan, is aimed at ensuring a free and open Indo-Pacific, a region that witnessed increasing Chinese military assertiveness in the recent years.

(Only the headline and picture of this report may have been reworked by the Business Standard staff; the rest of the content is auto-generated from a syndicated feed.)

https://www.business-standard.com/article/current-affairs/india-japan-discuss-regional-security-call-for-free-open-maritime-order-120122201386_1.html



Wed, 23 Dec 2020

China can copy everything except aircraft engines. Why?

China is a huge factory for stamping fakes, and for many decades. They copy everything from clothes to military and space equipment. The party's policy, established many years ago, implies to miss such a crucial and most expensive stage as development and design; instead, the technology is "borrowed" from the USSR-Russia, the UNITED States, the EU.

But not everyone can just copy, for example, over the problem of aircraft engines there are struggling for a long time and so far without success. And we are talking not only about engines for fighters but also for civilian passenger planes.

Thus, the Chinese tried in the 80s to copy the American engines F-404-GE-402 and F-404-GE-F1D2 for F/A-18 and F-117A Nighthawk fighters. It is quite expected that they failed, and then China paid attention to Soviet-Russian products.



The Russian engine RD-93 seemed to the Chinese a worthy candidate to copy; it is simpler than the American and more reliable. And some successes they have achieved – there was an engine WS-13E, which the Chinese proudly called "theirs."

But it was not easy – not knowing the alloys from which the Russian engine is made, the WS-13E was much worse than the original, the engine just did not keep high temperatures. The exit was found – the working areas of the engine were applied ceramic coating, which allowed it to work at high temperatures.

The engines were installed in a light JF-17 fighter and sold to Pakistan. Since the WS-13E is unreliable and relatively low-power, a new WS-15 engine is being developed for the "newest" 5th generation J-20 fighter jets, but it is also deaf, and Chinese aircraft are flying on Russian engines.

The Y-20 military transport aircraft and the N-6 long-range bomber are also flying on the Russian D-30KP2 engines, which was developed in the USSR in the 1960s. The Chinese are working on a replacement – W-20 is brought to mind, but so far there is deaf.

<https://www.defenceaviationpost.com/2020/12/china-can-copy-everything-except-aircraft-engines-why/>

Recently launched communication satellite CMS-01 placed in final orbit

This was the second launch of the space agency this year when most of the planned launches were delayed because of the Covid-19 pandemic

By Anonna Dutt

New Delhi: The communication satellite CMS-01 launched by the Indian Space Research Organisation (ISRO) last Thursday has been placed in its final circular orbit of about 36,000 kilometres after a few orbit raising manoeuvres.

CMS-01 is India's 42nd communication satellite that will replace the functions of GSAT-12 launched in 2011. It will remain in orbit for over seven years providing connectivity for e-learning, tele-health, and disaster management services.

The satellite was placed in an elliptical Geostationary Transfer Orbit by India's workhorse PSLV-C50 on December 20 after 20 minutes 11 seconds of a launch from India's only spaceport at Sriharikota. This was the second launch of the space agency this year when most of the planned launches were delayed because of the Covid-19 pandemic.

Four days after the launch, the onboard liquid apogee motor was fired a few times to increase the orbit to the final geosynchronous one. A geosynchronous orbit matches the Earth's rotation and is used by satellites for weather monitoring, communications, and surveillance.

"After the injection of CMS-01 communication satellite into an elliptical sub-Geosynchronous Transfer Orbit on December 17, 2020, all orbit raising manoeuvres have been completed successfully. The satellite reflector has been deployed. All the intended launch and early phase operations are completed successfully," said ISRO in a statement.

After in-orbit testing, the satellite will be handed over to the users of communication services in the first week of January 2021.

<https://www.hindustantimes.com/india-news/recently-launched-communication-satellite-cms-01-placed-in-final-orbit/story-PQdjJhz0WBrqSnAS03FmSK.html>



File photo: Polar Satellite Launch Vehicle (PSLV) C-50 ahead of launch of CMS-01 communication satellite on Thursday.(PTI)

Scientists invent glue activated by magnetic field

Scientists from Nanyang Technological University, Singapore (NTU Singapore), have developed a new way to cure adhesives using a magnetic field.

Conventional adhesives like epoxy which are used to bond plastic, ceramics and wood are typically designed to cure using moisture, heat or light. They often require specific curing temperatures, ranging from room temperature up to 80 degrees Celsius.

The curing process is necessary to cross-link and bond the glue with the two secured surfaces as the glue crystallizes and hardens to achieve its final strength.

NTU's new 'magnetocuring' glue can cure by passing it through a magnetic field. This is very useful in certain environmental conditions where current adhesives do not work well. Also, when the adhesive is sandwiched between insulating material like rubber or wood, traditional activators like heat, light and air cannot easily reach the adhesive.

Products such as composite bike frames, helmets and golf clubs, are currently made with two-part epoxy adhesives, where a resin and a hardener are mixed and the reaction starts immediately.

For manufacturers of carbon fiber—thin ribbons of carbon glued together layer by layer—and makers of sports equipment involving carbon fiber, their factories use large, high temperature ovens to cure the epoxy glue over many hours. This energy-intensive curing process is the main reason for the high cost of carbon fiber.

The new "magnetocuring" adhesive is made by combining a typical commercially available epoxy adhesive with specially tailored magnetic nanoparticles made by the NTU scientists. It does not need to be mixed with any hardener or accelerator, unlike two-component adhesives (which has two liquids that must be mixed before use), making it easy to manufacture and apply.

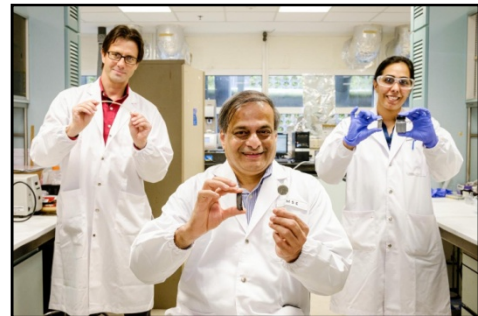
It bonds the materials when it is activated by passing through a magnetic field, which is easily generated by a small electromagnetic device. This uses less energy than a large conventional oven.

For example, one gram of magnetocuring adhesive can be easily cured by a 200-Watt electromagnetic device in five minutes (consuming 16.6 Watt Hours). This is 120 times less energy needed than a traditional 2000-Watt oven which takes an hour (consuming 2000 Watt Hours) to cure conventional epoxy.

Developed by Professor Raju V. Ramanujan, Associate Professor Terry Steele and Dr. Richa Chaudhary from the NTU School of Materials Science and Engineering, the findings were published in the scientific journal *Applied Materials Today* and offer potential application in a wide range of fields.

This includes high-end sports equipment, automotive products, electronics, energy, aerospace and medical manufacturing processes. Laboratory tests have shown that the new adhesive has a strength up to 7 megapascals, on par with many of the epoxy adhesives on the market.

Assoc Prof Steele, an expert in various types of advanced adhesives, explained: "Our key development is a way to cure adhesives within minutes of exposure to a magnetic field, while preventing overheating of the surfaces to which they are applied. This is important as some surfaces that we want to join are extremely heat-sensitive, such as flexible electronics and biodegradable plastics."



(Left to right) NTU Assoc Prof Terry Steele, Prof Raju V. Ramanujan and Dr Richa Chaudhary holding up various soft and hard materials bonded by their new magnetocuring glue Credit: NTU Singapore

How 'magnetocuring' glue works

The new adhesive is made of two main components—a commercially available epoxy that is cured through heat, and oxide nanoparticles made from a chemical combination including manganese, zinc and iron ($\text{MnxZn}_{1-x}\text{Fe}_2\text{O}_4$).

These nanoparticles are designed to heat up when electromagnetic energy is passed through them, activating the curing process. The maximum temperature and rate of heating can be controlled by these special nanoparticles, eliminating overheating and hotspot formation.

Without the need for large industrial ovens, the activation of the glue has a smaller footprint in space and energy consumption terms. The energy efficiency in the curing process is crucial for green manufacturing, where products are made at lower temperatures, and use less energy for heating and cooling.

For instance, manufacturers of sports shoes often have difficulty heating up the adhesives in between the rubber soles and the upper half of the shoe, as rubber is a heat insulator and resists heat transmission to the conventional epoxy glue. An oven is needed to heat up the shoe over a long time before the heat can reach the glue.

Using magnetic-field activated glue bypasses this difficulty, by directly activating the curing process only in the glue.

The alternating magnetic field can also be embedded at the bottom of conveyor belt systems, so products with pre-applied glue can be cured when they pass through the magnetic field.

Improving manufacturing efficiency

Prof Raju Ramanujan, who is internationally recognized for his advances in magnetic materials, jointly led the project and predicts that the technology could increase the efficiency of manufacturing where adhesive joints are needed.

"Our temperature-controlled magnetic nanoparticles are designed to be mixed with existing one-pot adhesive formulations, so many of the epoxy-based adhesives on the market could be converted into magnetic field-activated glue," Prof Ramanujan said.

"The speed and temperature of curing can be adjusted, so manufacturers of existing products could redesign or improve their existing manufacturing methods. For example, instead of applying glue and curing it part by part in a conventional assembly line, the new process could be to pre-apply glue on all the parts and then cure them as they move along the conveyor chain. Without ovens, it would lead to much less downtime and more efficient production."

First author of the study, Dr. Richa Chaudhary said, "The curing of our newly-developed magnetocuring adhesive takes only several minutes instead of hours, and yet is able to secure surfaces with high strength bonds, which is of considerable interest in the sports, medical, automotive and aerospace industries. This efficient process can also bring about cost savings as the space and energy needed for conventional heat curing are reduced significantly."

Previous work on heat-activated glue used an electric current flowing through a coil, known as induction-curing, where the glue is heated and cured from outside. However, its drawbacks include overheating of the surfaces and uneven bonding due to hotspot formation within the adhesive.

Moving forward, the team hopes to engage adhesive manufacturers to collaborate on commercializing their technology. They have filed a patent through NTUitive, the university's innovation and enterprise company. They have already received interest in their research from sporting goods manufacturers.

More information: Richa Chaudhary et al, *Magnetocuring of temperature failsafe epoxy adhesives*, *Applied Materials Today* (2020). DOI: [10.1016/j.apmt.2020.100824](https://doi.org/10.1016/j.apmt.2020.100824)
<https://phys.org/news/2020-12-scientists-magnetic-field.html>

New experiment provides better understanding of fundamental photo-induced X-ray processes

An international team from Germany, Sweden, Russia and the USA, led by scientists from European XFEL, has published the results of an experiment that could provide a blueprint for the analysis of transition states in atoms and molecules. This would open up new opportunities to gain insights into important processes such as photocatalysis, elementary steps in photosynthesis and radiation damage.

It was the very first user experiment carried out at European XFEL's Small Quantum System (SQS) instrument. The scientists used high-resolution electron spectroscopy to capture a snapshot of the short-lived transient state produced when X-rays punch a hole in the very core of the atomic electron cloud. The results of the study, which was carried out on neon atoms, are the starting point for the analysis of transient states and have been published in *Physical Review X*.

The extremely short-lived transient state of core-excited neon lasts for just 2.4 femtoseconds. To put a femtosecond in context: a femtosecond is to a second as a second is to about 31.71 million years. "The European XFEL allows us to use a high number of laser pulses per second and high pulse energy. This means we can bring a very high number of photons to the sample, which is crucial to probe such transient atomic states," explains Tommaso Mazza, the lead author of the paper.

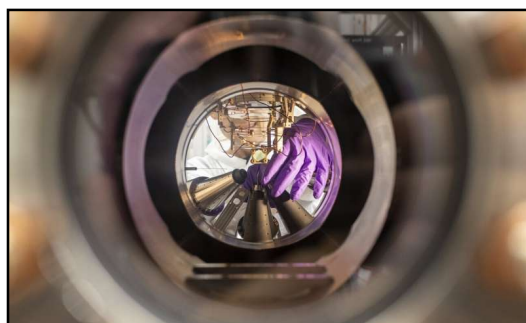
"We used intense X-ray pulses to first remove the electrons from the inner shell, or core, of a neon atom and then used a second photon from the same X-ray pulse to map out the 'hollow' atom," says Mazza. "This is the first time scientists are able to obtain information of the electronic structure of this core-hole transient state by X-ray induced electron spectroscopy, and, more precisely, by measuring the energy of the electrons emitted after the excitation by the second photon while smoothly changing the wavelength of the X-ray pulses," he adds.

Leading Scientist at SQS Michael Meyer underlines that the results of this paper along with a paper recently published in *Science* show the outstanding possibility to efficiently control and probe excitations of specific electronic subshells at the SQS instrument. "We can enable atomic or element specific excitations in molecular targets and independently investigate for each atom the influence on the photon-induced molecular dynamics," he says. Targeting a specific atom in a molecule allows scientists to gain deeper understanding of the behavior of individual building blocks in the molecular assembly under intense irradiation.

The European XFEL in the Hamburg area is a large international X-ray laser facility. Its 27,000 X-ray flashes per second and their high brilliance open up completely new opportunities for science. Research groups from around the world are able to map the atomic details of viruses, decipher the molecular composition of cells, take three-dimensional 'photos' of the nanoworld, 'film' chemical reactions, and study processes such as those occurring deep inside planets.

More information: T. Mazza et al, Mapping Resonance Structures in Transient Core-Ionized Atoms, *Physical Review X* (2020). DOI: [10.1103/PhysRevX.10.041056](https://doi.org/10.1103/PhysRevX.10.041056)

Journal information: *Science*, *Physical Review X*
<https://phys.org/news/2020-12-fundamental-photo-induced-x-ray.html>



A view into the atomic-like quantum systems (AQS) experiment station. The experiment is carried out at the SQS scientific instrument of the European XFEL, using the AQS experimental station. Credit: European XFEL

Multiparty entanglement: When everything is connected

Entanglement is a ubiquitous concept in modern physics research: it occurs in subjects ranging from quantum gravity to quantum computing. In a publication that appeared in *Physical Review Letters* last week, UvA-IoP physicist Michael Walter and his collaborator Sepehr Nezami shed new light on the properties of quantum entanglement—in particular when many particles are involved.

In the quantum world, physical phenomena occur that we never observe in our large scale everyday world. One of these phenomena is quantum entanglement, where two or more quantum systems share certain properties in a way that affects measurements on the systems. The famous example is that of two electrons that can be entangled in such a way that—even when taken very far apart—they can be observed to spin in the same direction, say clockwise or counterclockwise, despite the fact that the spinning direction of neither of the individual electrons can be predicted beforehand.

Multiparty entanglement

This example is somewhat limited: entanglement does not necessarily have to be between two quantum systems. Multi-particle systems can also be entangled, even in such an extreme way that if for one of them a certain property is observed (think of 'spinning clockwise' again), the same property will be observed for all the other systems. This multipartite entanglement is known as a GHZ state, after physicists Daniel Greenberger, Michael Horne and Anton Zeilinger.

In general, multipartite entanglement is poorly understood, and physicists don't have much systematic insight into its workings. In a new paper that was published in *Physical Review Letters* this week, UvA physicist Michael Walter and his collaborator Sepehr Nezami from Caltech begin to fill this gap by theoretically investigating a rich class of many-body states and their entanglement properties. To this end, they employ a mathematical technique known as a 'tensor network.' The researchers show that the geometrical properties of this network provide a host of useful information about the entanglement properties of the states under investigation.

The more detailed understanding of quantum entanglement that the authors obtain could have many future applications. The research was originally motivated by questions in the search for a better understanding of the quantum properties of gravity, but the technical tools that have been developed are also very useful in the theory of quantum information that is used to develop quantum computers and quantum software.

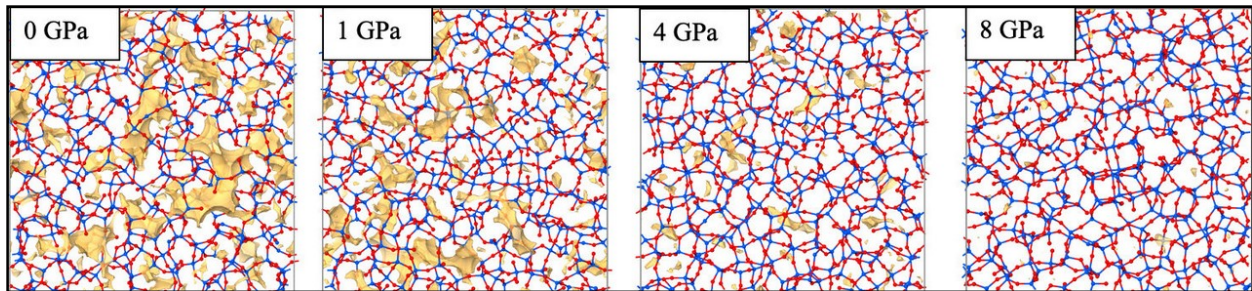
More information: Sepehr Nezami et al. Multipartite Entanglement in Stabilizer Tensor Networks, *Physical Review Letters* (2020). [DOI: 10.1103/PhysRevLett.125.241602](https://doi.org/10.1103/PhysRevLett.125.241602)

Journal information: [Physical Review Letters](https://phys.org/news/2020-12-multiparty-entanglement.html)
<https://phys.org/news/2020-12-multiparty-entanglement.html>

Putting on the pressure improves glass for fiber optics

By A'ndrea Elyse Messer

Rapid, accurate communication worldwide is possible via fiber optic cables, but as good as they are, they are not perfect. Now, researchers from Penn State and AGC Inc. in Japan suggest that the silica glass used for these cables would have less signal loss if it were manufactured under high pressure.



The voids (yellow) in silica glass become much smaller when the glass is quenched at higher pressures. Credit: Yongjian Yang, Penn State
The voids (yellow) in silica glass become much smaller when the glass is quenched at higher pressures. Credit: Yongjia

"Signal loss means that we have to use amplifiers every 80 to 100 kilometers (50 to 62 miles)," said John C. Mauro, professor of materials science and engineering, Penn State. "After that distance, the signal wouldn't be detected properly. Across continents or across oceans that becomes a big deal."

Glass fibers lose signal strength because of Rayleigh scattering—scattering of light that comes from fluctuations in the glass's atomic structure.

"Glass, on an atomic scale, is heterogeneous," said Mauro. "It has an open porosity on an atomic scale that occurs randomly."

The strands in fiber optical cables are made from ultra-high purity silica glass.

"Historically, the biggest breakthrough was the discovery that led to the original optical fiber—how to get rid of the water in the glass," said Mauro.

Normally glass has a lot of water that absorbs the signal at the frequencies commonly used for telecommunications. Using a modified form of chemical vapor deposition, the fibers could be made free of water. But, like nearly all glass, optical fibers are manufactured at ambient pressure.

Mauro and his team used molecular simulations to investigate the effects of pressure when making optical fibers. They reported their results in *npj Computational Materials*. The simulations showed that using pressure quenching of the glass, the Rayleigh scattering loss could be reduced by more than 50%.

Pressure treatment of the glass would make the material more homogeneous and decrease the microscopic holes in the structure. This would create a higher mean density material with less variability.

"We were looking for the independent processes that can control mean and variance," said Mauro. "We realized that the pressure dimension had not been explored previously."

Mauro's work is a molecular simulation, but Madoka Ono of AGC Inc.'s Materials Integration Laboratories, who is an associate professor in the Research Institute for Electronic Science at Hokkaido University in Japan, tested bulk pieces of silica glass and found that the results matched the simulation.

"The optimum pressure we found was 4 gigapascals," said Mauro. "But there is still a process challenge that needs to be addressed."

To manufacture optical fiber under pressure, the glass would need to be formed and cooled under pressure while it is in the glass transition phase—the temperatures when glass is sticky, not a solid and not truly liquid. To do this would require a pressure chamber capable of 40,000 atmospheres.

More information: Yongjian Yang et al, Topological pruning enables ultra-low Rayleigh scattering in pressure-quenched silica glass, *npj Computational Materials* (2020). DOI: [10.1038/s41524-020-00408-1](https://doi.org/10.1038/s41524-020-00408-1)
<https://phys.org/news/2020-12-pressure-glass-fiber-optics.html>



Wed, 23 Dec 2020

Waste to treasure: Crayfish shells to store energy

More than just a spicy night snack, the crayfish has been endowed with greater significance. Prof. Zhu Xifeng's team from University of Science and Technology of China (USTC) of the Chinese Academy of Sciences (CAS) made it possible to use crayfish shell as the biological template for high-performance supercapacitors. This work was published in *Carbon*.

Compared with other high-performance materials, biomass has long been regarded as a promising one for its environmental-friendliness and wide availability. However, practical application of biomass is restricted by relatively rare efficient storage sites, low diffusion kinetics and the need for huge amount of premade nano templates.

To solve these problems, the researchers innovatively introduced crayfish shells to initiate the biological template.

Shells were dried, ground and pretreated in an alkaline solution to retrieve templates, which were then mixed with the heavy fraction of bio-oil derived from agricultural waste to manufacture hierarchical porous carbons, a kind of supercapacitor material.

The mixed product delivered very good capacitance of 351 F/g thanks to its ultrahigh specific surface area, large total pore volume and reasonable content of oxygen atoms, which are of importance to a capacitor.

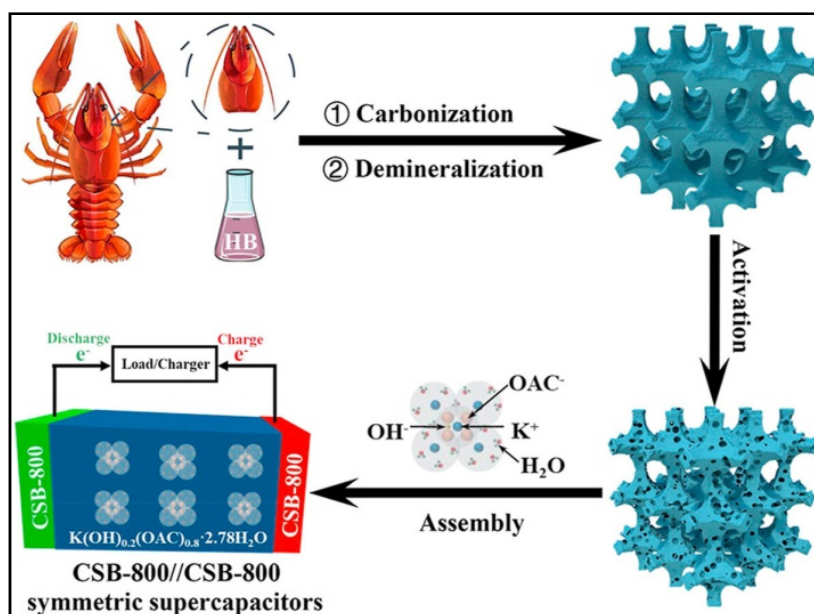
Besides, the symmetric supercapacitors assembled by the synthetic samples showed a superior energy density of 20 Wh/kg at a power density of 350W/kg, preceding other biomass materials.

This method possesses an environmentally friendly solution for the power storage problem of the rapidly growing market for wearable displays, electric vehicles and smartphones.

More information: Zejun Luo et al, Synthesis of 3D-interconnected hierarchical porous carbon from heavy fraction of bio-oil using crayfish shell as the biological template for high-performance supercapacitors, *Carbon* (2020). DOI: [10.1016/j.carbon.2020.11.083](https://doi.org/10.1016/j.carbon.2020.11.083)

Journal information: *Carbon*

<https://phys.org/news/2020-12-treasure-crayfish-shells-energy.html>



Schematic diagram of preparing HPCs with heavy bio-oil (HB) assisted by crayfish shell. Credit: Luo Zejun et al

Oxygen level while walking identifies at-risk patients: Covid Science

The following is a roundup of some of the latest scientific studies on the novel coronavirus and efforts to find treatments and vaccines for Covid-19, the illness caused by the virus

The following is a roundup of some of the latest scientific studies on the novel coronavirus and efforts to find treatments and vaccines for Covid-19, the illness caused by the virus.

It can be helpful to assess blood oxygen levels in patients when they are walking if that level is normal when they are sitting, a new study suggests. A low level of oxygen in the blood, or hypoxia, contributes to shortness of breath and worsening illness in patients with Covid-19. At 10 Chicago-area hospitals, doctors studied 531 Covid-19 patients whose blood oxygen levels were normal at rest. Roughly one in four developed hypoxia when they got up and walked. These individuals were nearly five times more likely to eventually need basic oxygen support and nearly eight times more likely to need advanced oxygen therapy, compared to patients whose blood oxygen levels held steady while walking. The drop in blood oxygen levels while walking could be detected an average of 12 hours before patients required extra oxygen, researchers found. So-called ambulatory hypoxia “may serve as an early, non-invasive physiologic marker for the likelihood of developing moderate to severe disease and help clinicians triage patients and initiate earlier interventions,” the researchers proposed in a paper posted on Thursday on medRxiv ahead of peer review.

Cancer patients should get vaccine priority

Cancer patients who get Covid-19 are at high risk for poor outcomes and should be considered for priority access to coronavirus vaccines, according to The American Association for Cancer Research Covid-19 and Cancer Task Force. The task force reviewed available data on fatality rates of patients with cancer who developed Covid-19 and based their recommendation on 28 publications. Their position paper was published on Saturday in the journal Cancer Discovery. A separate Italian study reiterated that fear of infection should not be a reason to delay cancer treatments. Among nearly 60,000 cancer patients treated early this year in Italy, fewer than 1% developed Covid-19, they reported on Thursday in JAMA Oncology. Early reports from China indicated a much higher risk of contracting Covid-19 among patients getting cancer therapy, Dr. Carlo Aschele of Ospedale Sant’Andrea in La Spezia told Reuters. “In Italy, oncologists, and patients as well, were terrified, expecting to face a huge amount of infections and death, particularly among patients receiving chemo or immunotherapy,” he said. The reassuring results will allow oncologists and patients to make informed decisions regarding antitumor treatment during this pandemic, he added.

EU regulators urge caution for vaccines, treatments in pregnant women

The European Medicines Agency said on Monday that the Covid-19 vaccine developed by Pfizer Inc and BioNTech SE should only be given during pregnancy “on a case by case basis” because there are not enough data yet on the potential risks to pregnant women. The U.S. Centers for Disease Control and Prevention (CDC) had already acknowledged the issue on its website. It advises that “getting vaccinated is a personal choice for people who are pregnant.” There is also a lack of data for Covid-19 treatments in pregnant women, according to a paper published on Wednesday in The Lancet Global Health. Researchers who reviewed clinical trial registries found

that of 722 COVID-19 treatment studies, 538 (75%) specifically excluded pregnant women. “Without explicit and proactive efforts to recruit and retain pregnant women in therapeutic trials for Covid-19, expectant mothers will suffer from having fewer medical options available to them, because we are not including them in clinical trials,” coauthor Dr. Melanie Taylor from the World Health Organization and CDC said in a statement. “There is a very real possibility that treatment (for Covid-19) could become approved ... without evidence-based guidance for use in pregnant women.”

Low reinfection risk for those who test positive for antibodies

A study of more than three million people adds to evidence that people with Covid-19 antibodies have a significantly lower risk of future infection with the new coronavirus. Working with healthcare data analytics companies HealthVerity and Action, as well as commercial labs Quest Diagnostics and LabCorp, researchers at the U.S. National Cancer Institute (NCI) had access to results of more than 50% of commercial Covid-19 antibody tests conducted in the United States through August. Overall, 11.6% of the tests were antibody-positive. When researchers looked at study subjects who returned to the labs for repeated tests, they found people who were antibody-positive on the first test had a roughly 10-fold lower risk of having evidence of new infection compared to people with a negative first test. “This finding suggests that people who have a positive antibody test result ... have significant immunity to SARS-CoV-2 and are at lower risk for future infection,” said the NCI’s Dr. Norman Sharpless. His team’s report was posted on medRxiv on Sunday ahead of peer review.

(This story has been published from a wire agency feed without modifications to the text. Only the headline has been changed.)

<https://www.hindustantimes.com/health/oxygen-level-while-walking-identifies-at-risk-patients-covid-science/story-mB5ynVVNCIYHtCO833zFvJ.html>

