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# समाचार पत्रों से चयित अंश Newspapers Clippings

A Daily service to keep DRDO Fraternity abreast with DRDO Technologies, Defence Technologies, Defence Policies, International Relations and Science & Technology

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# THE ECONOMIC TIMES

Thu, 29 Oct 2020

## **View: The Defence Procurement Manual 2020 is a step towards attaining 'AatmaNirbhar Bharat'**

*By Dr. W.Selvamurthy and Sneha Nair*

### *Synopsis*

***DRDO has been supporting nation-building through critical strategic defence technologies and various state-of-the-art weapon systems in the field of missiles, aeronautics, RADARS, SONARS, torpedos, electronic warfare, life-support technologies, and CBRN protection.***

The new version of Defence Procurement Manual 2020 which was released by Defence Minister Rajnath Singh on October 20, 2020 has come at a very opportune time when the country is vibrant and is looking for self-reliance in critical defence technologies. There is a huge market to be explored as the Government is eyeing to increase the country's defence production and exports to USD \$25 billion by 2025. Similarly, Government funding on procurement of defence equipment has been estimated to be around USD \$130 billion in the next five years.

The Prime Minister promulgated "AatmaNirbhar Bharat," "Make in India", "Startup India", "Stand-up India" which will prove to be a boon to the domestic defence industries by creation of an enabling ecosystem.

DRDO has evolved over a period to be a powerful defence R&D hub for the country and has developed capabilities in a vast canvas of defence technologies. Today the organization has been supporting nation-building through critical strategic defence technologies and various state-of-the-art weapon systems in the field of missiles, aeronautics, RADARS, SONARS, torpedos, electronic warfare, life-support technologies, and CBRN protection. The document has therefore come at the most opportune time when there is a need to build flexibility in acquisition and procurement procedures which is the common denominator with which the Procurement Manual 2020 has been promulgated. There has been simplification of procedures and internal restructuring within DRDO for empowerment of Director Generals and project directors through effective governance mechanism for enabling faster decision-making capabilities to promote quicker execution of projects.

Through this document, DRDO has gone further by stimulating development of indigenous technologies by placing 108 technologies/ sub-systems in their portal for seeking partnership in research and development and thereby creating opportunities for private industries particularly startups and MSMEs to become part of DRDO's industry base which currently consists of more than 1,800 MSMEs in addition to PSUs and large-scale industries.

Today major industries like L&T, Tata, Godrej, Mahindra & Mahindra, Reliance have also blossomed and are investing heavily on Research & Development. This manual will also open



**In this file picture from 2019, the DRDO stall can be seen at Aero India**

gates for academic institutes to join hands with industries for enhancing the nation's manufacturing capability while adopting the concept of "My brain, Your hands" wherein ideas put forth by DRDO for technological advancements in the next 15 years can be taken up for research and development for meeting the requirements of the defence sector.

The initiative is a step towards increasing private participation right from design, development, test & evaluation, manufacturing and after sales support. The highlights of the manual includes placement of order on second lowest bidder (L2) in case lowest bidder (L1) is not able to fulfil the contract, thereby cutting short the process and facilitating quicker procurement which was delayed earlier due to re-tendering procedures. Another enabling measure is the exemption of bid security and performance security of upto Rs. 10 lakh, no negotiation for commercial off-the-shelf (COTS) items, and services wherever price discovery is taking place due to market forces, safeguarding of free issue material through insurance cover instead of bank guarantee, and reduction of liquidated damage rate for development contracts. The manual will therefore facilitate faster execution due to simplified procedures as what took six months earlier will now be achieved in a month.

An important move of increasing the quantum of advance payment from 15% to 40% will prove to be beneficial as manufacturing of defence equipment is expensive, time consuming and requires availability of enough funds. This will help MSMEs sustain themselves during the long gestation period of product introduction, qualification and coming into use in commercially meaningful quantities.

DRDO also been contemplating on Government Owned Contractor Operated (GOCO) model in order to create an ecosystem to improve the operational efficiency and creating opportunities for private industries. In order to bolster its domestic defence manufacturing base, the government has already released a negative list of weapons and platforms comprising of artillery guns, assault rifles, ammunition, radars, communication satellites which are banned from import over the next few years, making way for local manufacturing units to capture market worth around USD \$53 billion.

The announcement of Procurement Manual 2020 will further support in establishing India as a global defence industry hub by strengthening the partnerships with MSMEs and startups. The domestic defence ecology will be boosted through indigenous production and at the same time catalyse job creation and harness the potential of the Indian industrial base.

Certainly, the Government needs to ensure a conducive environment for the implementation of the manual in sync with the National goals for achieving the vision of a self-reliant India.

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*(Disclaimer: Views expressed above are the author's own.)*

<https://economictimes.indiatimes.com/news/defence/view-how-the-defence-procurement-manual-2020-is-a-step-towards-attaining-aatmanirbhar-bharat/articleshow/78912690.cms>

Thu, 29 Oct 2020

## **Indian Air Force gets big Rafale boost, 16 fighter jets to land in India by April**

*Five Rafale jets flew to Ambala airbase via Abu Dhabi on July 29. Three are coming on November 5, three will arrive in January, three in March, and seven more in April, carrying a total of fighter jets to 21 single-seat fighters and seven twin-seat trainer fighters handed over to IAF*

*Edited By Ravi Dubey*

The strike capacity of the Indian Air Force is set to increase with 16 Omni-roll Rafale jet fighters scheduled to be included in the Golden Arrow Squadron by April 2021. With France's largest jet engine manufacturer Safran ready to build combat engines and auxiliaries in India will also boost.

Five Rafale jets flew from Abu Dhabi to Ambala airbase on July 29 and were already inducted into Squadron 17 of the Indian Air Force. The next batch of three Rafale will come to Ambala directly from the Bordeaux-Mérignac facility on November 5. Seven Rafale fighter jets are already being used for training IAF fighter pilots in France.



According to a report in Hindustan Times, three more Rafale will arrive in January, three in March, and seven in April, the total number of fighter aircraft assigned to the IAF, 21 single-seat fighters and seven twin-seat trainer fighters. The remaining three can be dispatched to the Hashimara Airbase at Alipurduar in North Bengal to counter China's threat on the Eastern Front. All fighter scallops are equipped with air-to-ground cruise missiles with mica and meteor air-to-air missiles. India has now requested Safran for an air-to-ground modular weapon with a 250 kg warhead.

Not only will the M-88 engines be used by Rafale fighter jets, but they can also be deployed for Light Combat Aircraft Mark II and twin-engined advanced multi-role combat aircraft. The Light Combat Aircraft Mark II and twin-engined advanced multi-role combat aircraft are developed by the Defence Research and Development Organization (DRDO).

IAF plans to buy 83 LCA Mark IA jets, taking the total number of Tejas variants to 123. Safran is said to be willing to offer the engine with no third-country spare parts so that additional approval is not required and 100% indigenization. The French proposal is likely to discuss during Foreign Secretary Harsh Shringla's visit to France, UK, and Germany, starting in Paris this Thursday. While DRDO can continue to develop its combat engine, Safran will fill the gap between engine development and manufacture.

<https://www.dnaindia.com/india/report-indian-air-force-gets-big-rafale-boost-16-fighter-jets-to-land-in-india-by-april-2852854>



## Rafale deal with France has propelled India ahead of China in both air power & technological prowess?

By Aakriti Sharma

The depleting fleet of the Indian Air Force is set to get a Rafale boost as India is set to receive 16 of the 36 fighter jets by April 2021. The next batch of three Rafale fighter jets will arrive in Ambala on 5 November from the Bordeaux-Merignac facility according to latest reports.

Unlike the last time, the jets will not be stopping anywhere as they will be fuelled mid-air, as per the senior government officials quoted by the Hindustan Times. So far, India has received five Rafale jets, three single-seater and two twin-seater, which were inducted into the force's Golden Arrows squadron in September.

India will be receiving three more Rafale fighters in January, another three in March and seven in April 2021.

With this, the IAF will have 21 of these fighter jets, including seven twin-seaters. As by April 2021, the Golden Arrows Squadron will be equipped with 18 of these fighter jets and the remaining three will be sent to Hashimara airbase in north Bengal's Alipurduar to protect the northeastern border with China.

The details on the arrival of rest of the jets have come after the senior officials of the Indian Air Force had reached France to review the progress earlier in October.

On India's request, the combat-proven fighter jets will be now equipped with the air-to-ground modular weapon known as Hammer with a 250kg warhead. Earlier, the jets had Mica and Meteor air-to-air missiles along with Scalp air-to-ground cruise missiles.

India had purchased a total of 36 Rafale fighter jets from France in a 2016 government-to-government deal at a cost of \$8.7 billion. The delivery of the jets will be completed by 2022.

### India to Produce Fighter Jet Engines

Stating another big development between India-France cooperation, a report by the Hindustan Times has claimed that France's biggest jet engine maker Safran is also ready to make fighter engines and ancillaries in India. The officials have welcomed Safran's offer to make the Snecma M-88 engines in India.

The same engines can be used in the Defence Research and Development Organisation's (DRDO) Light Combat Aircraft Mark II and twin-engine advanced multi-role combat aircraft.

Since the IAF is planning to buy 83 LCA jets, the DRDO will be continuing developing its own engines at a ramped-up pace and Safran engine will fill the gap between development and manufacture.

With the Safran offer, India will be the fourth country after the US, Russia and France which have the capacity to produce fighter jet engines. China still relies on Russian engines to power its J-31 and the JF-17 fighter jets.

The matter will likely be taken up during foreign secretary Harsh Shringla's visit to France, the UK and Germany, starting from Paris on Thursday.



Safran's contribution to the Rafale (Dassault Aviation) | Safran

## Lingering Border Stand-off

After the beginning of the military stand-off with China earlier in May, India had requested France to ensure timely delivery of the fighter jets, which were likely to be delayed due to the COVID-19 lockdown. However, France fulfilled its promise and delivered the first five of 36 jets in July.

While the last violent face-off between the Indian and Chinese armies took place in August end, the troops on both the sides remain engaged along the Line of Actual Control in spite of the onset of winter in the Himalayas.

Speculating that the stand-off is to last longer, the two armies have been providing their soldiers with winter supplies and gear to deal with the sub-zero temperatures of the Himalayas.

Reports have claimed that an additional 35,000-50,000 troops have been deployed in eastern Ladakh to match the strength of the Chinese People's Liberation Army in frontline bases.

China Study Group, the Indian government's top policy-making body on China-related issues, has taken up for deliberation a proposal made by Beijing to end the deadlock.

During the seventh round of military-commander level meetings on 12 October, China had proposed moving back the armoured units of the two armies from border areas. New Delhi will be responding to the offer in next round of talks.

<https://eurasianimes.com/how-rafale-deal-with-france-has-propelled-india-ahead-of-china-in-both-air-power-technological-prowess/>



**DEFENCE AVIATION POST**  
Your Connect To The World Of Defence And Aviation

*Thu, 29 Oct 2020*

## Why is an electromagnetic railgun called the weapon of the future?

Rail gun is a weapon capable of launching projectile without the usage of explosives or propellants, but, are launched at extremely high velocities, mach 7 (at sea level) or more.

Capability of launching projectiles at velocities higher than guns and cannons makes rail gun hit targets at greater ranges capable of hitting the target with extreme speed and accuracy thus nullifying the escape factor of the enemy platform or an approaching projectile. With the usage of rail gun the hazards of usage of explosives and chemical propellants are evaded as well.

Ever since the U.S. NAVY showed the power of the Railgun and its advantages, we in the Indian Defense Research organization feel that this latest weapon the electromagnetic railgun launcher will give our Naval forces in the Arabian sea a superlative advantage and a capability to launch devastating attacks on both land and sea targets.

For a long time, Gun powder has been used as a propellant in weapons. Then why was there a need to make this electromagnetic rail gun despite having this gun powder?

There are many reasons behind this, mainly due to the below three major flaws of gray colored gun powder.

Limitation is that in order to use gun powder, it has to be applied inside the bullet or projectile, which ultimately increases the weight of that bullet or projectile.



Its second limitation is that gun powder is volatile, ie If we kept in open air, it will evaporate in the air like a camphor, so handling and transporting gun powder proves quite difficult. Third limitation is that the speed of the projectile or bullet to be fired using gun powder is limited. Because of above three major limitations of gun powder, the electromagnetic rail gun was made.

The electromagnetic rail gun uses magnetic field instead of gun powder and also does not reduce the speed of the projectile to be fired. Electromagnetic Rail gun is capable of firing a Projectile at a speed of MACH 7 delivering tremendous kinetic force, compared to a conventional weapon using an electromagnetic rail gun gun powder. Projectile speed would be approximately 7 times faster than the speed of sound. Electromagnetic rail gun can hit the target at a distance of 250 miles and that too in just 6 minutes.

Recently DRDO stated That they had developed, a 12 mm square bore Electromagnetic Railgun (EMRG) and successfully tested. Another 30 mm square bore EMRG is also ready for tests. Their target is to accelerate a 1 kg projectile to a velocity of more than 2000 m/s (~Mach 6) with a capacitor bank of 10 Mega Joules.

<https://www.defenceaviationpost.com/2020/10/why-is-an-electromagnetic-railgun-called-the-weapon-of-the-future/>

## BangaloreMirror

Thu, 29 Oct 2020

### Bengaluru-based firm has a new bridge design

*Advanced Truss Bridge, whose components are prefabricated and can be assembled at place of deployment, can replace the WW-II era Bailey Bridge*

*By Hemanth CS*

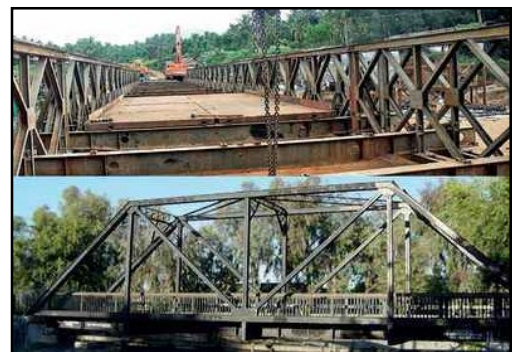
A city-based start-up founded by a retired DRDO Scientist has designed an Advanced Truss Bridge (ATB), which can become an alternative or replacement for the World War II era bridge (Bailey Bridge).

Former DRDO Director General S Guruprasad's defence tech start-up InnoGP Technologies Pvt Ltd has designed and developed the ATB which is about 50 per cent lighter than the vintage Bailey Bridge that is widely used in India as a logistics support bridge used in the North East and Himalayan region.

"The ATB is a modular bridge wherein all the components are prefabricated and are to be just assembled at the place of deployment. The ATB will be particularly advantageous especially in high-altitude areas," Guruprasad told Bangalore Mirror. He added that apart from weighing about 50 % of weight of an equivalent Bailey Bridge, the ATB can save transportation and erection costs as the lighter components make it easier to handle at high altitudes.

The ATB has all the advantages of the Bailey Bridge and has overcome all the shortcomings of that bridge –S Guruprasad

"Even though Bailey Bridges have been used very widely because of their modularity and ease of construction, there are certain shortcomings like they are prone to lateral buckling failure and inefficient structural configuration in double. The ATB has all the advantages of the Bailey Bridge and has overcome all the shortcomings of that bridge. The ATB has more advantages especially at high-altitude and remote areas as the prefabricated quick deployment structures would cost less than in-situ construction cost," he added. He also said that the ATB could be useful for urban infrastructure works and also for disaster management.



Top: A Bailey Bridge in India; Above: A truss bridge in California



“Apart from military applications, it can also be used for civil applications, like during a festival or a mela, temporary bridges are erected for movement of pilgrims. The ATB would be useful even in urban areas serving as overhead footbridges, temporary flyovers while the road repairs can go on overhead. And they are useful for Disaster Management Authorities as well,” he said. Guruprasad said he has applied for a patent through a Patent Attorney for the ATB and is discussing with the industry about its manufacturing.

[https://bangaloremirror.indiatimes.com//bangalore/others/bengaluru-based-firm-has-a-new-bridge-design/articleshow/78902207.cms?utm\\_source=Google\\_Newsstand&utm\\_campaign=RSS\\_Feed&utm\\_medium=Referral](https://bangaloremirror.indiatimes.com//bangalore/others/bengaluru-based-firm-has-a-new-bridge-design/articleshow/78902207.cms?utm_source=Google_Newsstand&utm_campaign=RSS_Feed&utm_medium=Referral)

## Defence News

### Defence Strategic: National/International

 **The Indian EXPRESS**

Thu, 29 Oct 2020

## Army Commanders' conference: Rajnath Singh lauds preparedness, pays tribute to Galwan troops

*Addressing the Army Commanders' Conference, Singh also paid tribute to the 20 soldiers killed in hand-to-hand combat with Chinese troops on June 15 in Galwan Valley, in which an undeclared number of Chinese troops had also died*

New Delhi: Lauding the Army for its high standard of operational preparedness, Defence Minister Rajnath Singh on Wednesday expressed confidence that while the soldiers are standing firm on the ground at the Line of Actual Control (LAC), the talks for peaceful resolution of the ongoing India-China standoff will continue.

Addressing the Army Commanders' Conference, Singh also paid tribute to the 20 soldiers killed in hand-to-hand combat with Chinese troops on June 15 in Galwan Valley, in which an undeclared number of Chinese troops had also died.

The Army said in a statement that Singh, “commenting on the current situation along the Northern borders... expressed confidence that while troops are standing firm, the ongoing talks for peaceful resolution of crisis will continue”.

He complimented the forces “for the high standard of operational preparedness and capabilities which he experienced firsthand during his visits to forward areas” and “paid tributes to the bravehearts of Galwan, Kashmir and the North East for making the ultimate sacrifice in the defence of the motherland”, the statement said.

“It is our national responsibility to ensure availability of best weapons, equipment and clothing to our troops braving extreme weather and hostile forces to defend our territorial integrity,” the statement quoted him as saying.



Defence Minister Rajnath Singh speaks at the Army Commanders' Conference in New Delhi on Wednesday. (PTI)

The Defence Minister lauded the efforts of the Border Roads Organisation “working under difficult conditions to connect far-flung areas”.

Regarding the Western border facing Pakistan, Singh lauded the Army’s “response to cross border terrorism and ceasefire violations” and commended the “excellent synergy between” the central forces, the police and the Army “in tackling the menace of terrorism in Jammu and Kashmir”, the statement said.

“It is due to the synergised operations in the valley that the Union Territory of Jammu and Kashmir is moving to a stable and peaceful environment conducive for overall growth and development,” Singh said.

The statement said Singh also appreciated the Army’s role in the fight against Covid-19 and stated that “actions of Indian Army truly ensure the integrity and sovereignty of our great nation”.

The Army Commanders’ conference is an “apex level biannual event”, currently being held from October 26 to 29. Army Chief General M M Naravane and the other senior Army officers attending the conference are “comprehensively deliberating upon all aspects of existing security scenarios, situation along the borders and in the hinterland and challenges for the present security apparatus”, the Army statement said. The Army leadership is also focusing on “issues pertaining to organisational restructuring, logistics, administration and human resource management”, it said.

During his address, Singh said creation of the post of the Chief of Defence Staff and the Department of Military Affairs “is a momentous decision in Indian history and the concept of Integrated Battle Groups, Integrated Theatre Commands and Integrated Air Defence Commands will be game changers in the way Indian Armed forces fight future wars”.

Mentioning the setting-up of Defence Cyber and Space Agencies, Singh said they will enhance the kinetic potential of the forces.

“There are no budgetary constraints for capability development and meeting other requirements of the Army,” Singh was quoted as saying.

He also said that the move to grant permanent commission to women in the Army — ordered by the Supreme Court earlier this year — is “another significant decision that will ensure equal opportunities for professional growth to all officers irrespective of their gender”.

He reiterated the government’s stand to corporatise the Ordnance Factory Board.

<https://indianexpress.com/article/india/army-commanders-conference-rajnath-singh-lauds-preparedness-pays-tribute-to-galwan-troops-6907793/>

## India in dialogue with China to end six month old military standoff: Rajnath Singh

By Elizabeth Roche

- ***The two sides were involved in a violent clash in June in which 20 Indian troops and an unknown number of Chinese personnel were killed***

New Delhi: Defence Minister Rajnath Singh on Wednesday said India was in dialogue with China to end a six month old military standoff and commended the Indian army for standing firm against any possible attempts at intrusion by the Chinese forces in the mean time.

“The ongoing talks for peaceful resolution of crisis will continue,” while “the troops are standing firm,” Singh was quoted as telling senior commanders of the Indian army at their biannual commanders conference in New Delhi. The brainstorming session comes as New Delhi is facing a major military challenge from China in the north and Pakistan in the west, making the oft warned spectre of a two front war, a real possibility. The four day conference which began on Monday is set to conclude on Thursday.



File Photo: Defence Minister Rajnath Singh (PTI)

The reference was to tensions between India and China that have been high since May this year after New Delhi detected intrusions by Chinese soldiers at multiple locations in Ladakh. The two sides were involved in a violent clash in June in which 20 Indian troops and an unknown number of Chinese personnel were killed. Many rounds of talks between the two countries at the military and diplomatic levels have not yet yielded any solution to the problem. At present, New Delhi was awaiting a response from China on a new set of dates proposed for the eighth round of military talks between the two countries, officials said.

In his remarks, the minister said that it was “our national responsibility to ensure availability of best weapons, equipment and clothing to our troops braving extreme weather and hostile forces to defend our territorial integrity.” The reference was to India sourcing high altitude winter clothing, tents and arms from countries like the US for the troops holding Indian positions at the heights of mountains in Ladakh. With the Chinese forces showing no signs of withdrawing from the positions they had taken along the Line of Actual Control border, India was clear that its troops would not vacate any vantage positions it had particularly around the Pangong Tso lake in eastern Ladakh.

Singh also commended the Border Roads Organisation (BRO) for meeting connectivity targets in far flung areas “so that our citizens living in those locations are connected and facilitate faster development.”

Referring to the situation along the border with Pakistan, Singh “complimented the Indian Army’s response to cross border terrorism and ceasefire violations,” a statement from the Indian army said.

“I compliment the excellent synergy between the CAPF (Central Armed Police Force)/ Police forces and the Army in tackling the menace of terrorism in Jammu and Kashmir. It is due to the synergised operations in the Valley that the Union Territory of Jammu and Kashmir is moving to a stable and peaceful environment conducive for overall growth and development,” he said.

<https://www.livemint.com/news/india/india-in-dialogue-with-china-to-end-six-month-old-military-standoff-rajnath-singh-11603896530415.html>

# What are the five integrated theatre commands as India gears up for its biggest military restructuring since 1947, and other key questions answered

*BECA is by far the most important strategic intelligence sharing accord between India and the US, signalling to Beijing that it has crossed the line*

*By Ranjit Bhushan*

There is a systemic military recast on the cards for the first time in India since 1947. For better coordination of the armed services, the Indian military is setting up five integrated theatre commands by 2022 with well-defined areas of operation.

With the appointment of the Gen Bipin Rawat as Chief of Defence Staff (CDS) on December 30, 2019, the first step towards this transformation was taken, which many consider long overdue. Gen Rawat is working on redesigning existing military commands into theatre commands and establishing new joint commands that will combine the resources and assets of the three defence forces, based on threats at India's borders.



## **What are the five integrated theatre commands?**

As per the proposals, the Northern Command's range will begin from the Karakoram Pass in Ladakh and continue up to the last outpost, Kibithu, in Arunachal Pradesh, with the military mandate of guarding the 3,488 km of the Line of Actual Control (LAC) with China.

The Western Command will be entrusted from Indira Col on Saltoro Ridge in the Siachen Glacier region to the tip of Gujarat. The Western and Eastern Command of the Indian Navy will be merged into the Peninsular Command, the fourth will be a full-fledged Air Defence Command and the fifth, a Maritime Command. The Air Defence Command will spearhead the country's aerial attack and be responsible for defending Indian airspace through multi-role fighters with all anti-aircraft missiles under its control while India's Maritime Command could include what is currently the tri-service Andaman and Nicobar Islands Command. It will be tasked to protect the Indian Ocean and India's island territories as well as keep the sea lanes free and open from any outside pressure.

## **What is the current command structure?**

There is a total of 17 commands today. In case of war, each Service Chief is expected to control the operations of his Service. To carry out his directions, he has functional commands headed by three-star rank Army Commanders (or equivalent in the Navy and Air Force). Thus, the Army has seven commands - Northern, Eastern, Southern, Western, Central, Southwestern and Army Training Command; the Indian Air Force too has seven commands - Western, Eastern, Southern, Southwestern, Central, Training and Maintenance while the Navy has three commands, Western, Eastern and Southern.

Besides these, there are two tri-Service Commands [Strategic Forces Command] and the Andaman and Nicobar Command, which is rotated among the three services.

### **How is the current synergy?**

None of these 17 commands is co-located at the same station! Each one is at a different station—as if a conscious effort has been made to stay away from each other and not tread on each other's toes!

### **Why is CDS the key?**

Most professional militaries, with CDS or equivalents, have added muscle to their warfighting capabilities. With twin threats of China in the North and Pakistan to its West, India has no choice but to reshape its military options. The need for an integrated military force to counter this threat is now a *sin qua non*.

### **Is military integration a new concept?**

Given India's military history, in the decades preceding the 1999 Kargil conflict, joint service endeavours were largely a cosmetic exercise. Kargil heightened the appreciation that modern wars cannot be fought with outdated structures, where the army, navy and the air force conducted operations independently. A modern military requires huge synergy - vast technological changes, an altering battlefield milieu, appearance of new threats and challenges, cyber and hybrid wars and, last but not the least, nuclear warfare.

### **What is the history of the Indian Army?**

The Indian military is one of the institutions that free India inherited from the British at the time of independence. Thus, in customs, traditions and culture, it has, by and large, followed the ethos of the British military. Even post-Independence, the Indian military has been influenced more by British practices than other militaries of the world. The organisational structure, at both the lower and higher levels, is based on the British model. Obviously, change is needed.

Notes former Army Chief, Gen Deepak Kapoor, in an in-depth article written for Centre of Land Warfare Studies (CLAWS): "Conceptually, jointness implies synergised use of the resources of the three Services in a seamless manner to achieve the best results in the least possible time, thus, avoiding duplication and making optimum use of the available resources. In absolute terms, the validity of jointness as a concept in modern day warfare is indisputable."

### **What is the BECA pact between India and the US?**

The long-awaited Basic Exchange and Cooperation Agreement or BECA, which gives India access to classified geo-spatial data as well as critical information having significant military applications from the US, was signed on October 27, 2020, as External Affairs Minister S Jaishankar and Defence Minister Rajnath Singh held the third edition of the 2+2 talks with US Secretary of State Mike Pompeo and US Defence Secretary, Mark Esper, in New Delhi.

BECA is the fourth and final 'foundational' understanding the US has with India. It will allow India to gain access to precision data and topographical images - on a real time basis, from US military satellites. The signing of the long-negotiated defence pact comes in the backdrop of India's tense border standoff with China in eastern Ladakh.

Under the agreement, the sensitive satellite and sensor data provided by the US will also allow India to keep a close watch on the movements of Chinese warships in the Indian Ocean.

The in-person talks were held at a time of the Trump administration's growing friction with Beijing over a host of issues, including trade tariff and Chinese military's offensive manoeuvres in the South China Sea.

Veteran diplomat, G Parthasarathy, told this writer: "This is real time intelligence sharing and India was postponing it for some time now, but Beijing has invited it upon itself. US has the best satellite and human intelligence in the world. This is a clear signal to China that it has crossed the line."

### **What are the three foundational agreements with the US preceding BECA?**

BECA is considered the last of the foundational agreements between India and the US. The two sides have been sharing real-time intelligence under the Communications Compatibility and Security Agreement (Comcasa) signed in 2018. They have also signed the General Security of



Military Information Agreement (GSOMIA) in 2002 and the Logistics Exchange memorandum of Agreement (Lemoa) in 2016. But clearly, BECA is the real thing.

*(Ranjit Bhushan is a senior journalist based in Delhi)*

<https://www.moneycontrol.com/news/india/what-are-the-five-integrated-theatre-commands-as-india-gears-up-for-its-biggest-military-restructuring-since-1947-and-other-key-questions-answered-6028411.html>



Thu, 29 Oct 2020

## More MSMEs to be involved in defence, aerospace sectors

*They should look at exploring export opportunities, says Defence Secretary*

Coimbatore: The Union Government is looking at doubling the number of Micro, Small and Medium-scale Enterprises (MSMEs) in the defence and aerospace sectors in the next four to five years, Defence Secretary Ajay Kumar said here on Wednesday.

Launching defence activities through the Codissia Defence Innovation and Atal Incubation Centre (CDIIC) at a virtual meet, he said the industrial eco-system and Micro Small and Medium Enterprises (MSMEs) in Coimbatore should now get into the defence and aerospace sectors, which are at a watershed moment in the country.



With several initiatives of the government to indigenise and encourage innovation in the sectors, there were huge opportunities for MSMEs. The units should look at not just producing for the Indian needs but also explore export opportunities. Global OEMs are open to sourcing from India, he said.

The Codissia Defence Innovation and Atal Incubation Centre on Wednesday signed MoUs in Coimbatore with 5 Base Repair Depot, Air Force, and the Naval Ship Repair Yard, Kochi, for indigenisation of their components and products. | Photo Credit: S SIVA SARAVANAN

Mr. Ajay Kumar exhorted the MSMEs to ensure that the products that they made were of high quality and cost-effective. Further, testing and certification procedures need to be bench-marked against the best in the world. "This is an area we need to start doing some work. The cost should come down for testing and certification and there can be tremendous use of technology for it. The Codissia (Coimbatore District Small Industries Association) and CDIIC should partner with the government to identify other areas that can be taken up under indigenisation and innovation," he said.

Mission Director of Atal Innovation Mission Ramanan Ramanathan said the mission had selected 100 centres, including the one set up in Coimbatore. The aim was to create world class start-ups and provide facilities for them to develop the best products.

Sanjay Jaju, Joint Secretary (DIP), Department of Defence Production, said 50 products had been identified for indigenisation with CDIIC in four years.

K. Gopal, MSME Secretary, Government of Tamil Nadu, said the State government was taking a lot of efforts to push Defence-related activities in the Defence corridor in the State.

V. Sundaram, director of CDIIC, said 10 incubatees would be selected for incubation this year and four of them had been identified. Another six would be finalised soon. The CDIIC would look

at having testing and prototyping facilities too. He urged the government to come out with a single tender process for MSMEs.

R. Ramamurthy, president of Coimbatore District Small Industries Association, said the plan was to make Coimbatore a Defence hub in another 10 years.

The CDIIC signed agreements with 5 Base Repair Depot, Air Force and Naval Ship Repair Yard, Kochi, for indigenisation of their components and products. Rear Admiral Deepak Bansal, Admiral Superintendent of Yard, Naval Ship Repair Yard, Indian Navy, and Air Commodore P.K. Sreekumar, Air Officer, Commanding, 5 Base Repair Depot, Indian Air Force, were present at the launch event.

A press release from NSRY said, the MoU allowed it to use world class facilities of MSMEs based in Coimbatore for hardware development, material testing and analysis and obsolescence mitigation programmes in respect of legacy equipment. In addition to this, the Naval Yard would be exposed to new manufacturing techniques, Industrial Safety and Quality Assurance that were being pursued by modern MSMEs.

<https://www.thehindu.com/news/cities/Coimbatore/more-msmes-to-be-involved-in-defence-aerospace-sectors/article32966772.ece>



Thu, 29 Oct 2020

## Navy signs MoU with MSMEs

*NSRY Admiral Superintendent Read Admiral Deepak Bansal and CDIIC director V Sundaram signed the MoU at a function held in Coimbatore*

Kochi: The Indian Navy and Naval Ship Repair Yard (NSRY) on Wednesday signed a memorandum of understanding (MoU) with Coimbatore District Small Scale Industries Association (CODISSIA) Defence Innovation and Incubation Centre for technology upgradation and material testing. NSRY Admiral Superintendent Read Admiral Deepak Bansal and CDIIC director V Sundaram signed the MoU at a function held in Coimbatore.

The MoU will foster cooperation between the Navy and MSMEs and help the NSRY harness the benefits of Atal Innovation Mission, which has been conceived to encourage innovation and technology development by engaging micro, small and medium enterprises (MSMEs), start-ups, research and development institutions and academia, the Navy said in a release.

The MoU will facilitate the NSRY to use world class facilities available with the Coimbatore based MSMEs for hardware development, material testing, analysis and obsolescence mitigation programmes in respect of legacy equipment. The Yard will also get exposure to new manufacturing techniques, industrial safety and quality assurance guidelines pursued by MSMEs. These would be vital for the yard especially as it is poised for major expansion in the wake of an enhanced charter.

<https://www.newindianexpress.com/cities/kochi/2020/oct/29/navy-signs-mou-with-msmes-2216345.html>

## United States offers F-18 Naval fighter jets for Indian Navy's requirements

### *Synopsis*

*The Indian Navy had a few years ago expressed interest in the acquisition of 57 naval fighter aircraft for operations from its aircraft carriers including the present INS Vikramaditya and the under-construction Indigenous Aircraft Carrier*

New Delhi: Seeking to develop further closer ties with India, the United States of America (USA) has offered its F-18 naval fighter jets for the Indian Navy's requirements of combat jets for its aircraft carriers.

The Indian Navy had a few years ago expressed interest in the acquisition of 57 naval fighter aircraft for operations from its aircraft carriers including the present INS Vikramaditya and the under-construction Indigenous Aircraft Carrier.

"The American Government has offered to provide their naval fighter aircraft F-18 for the Indian Navy under a government proposal at the meeting between defence delegations of both countries during the 2+2 meetings," government sources told here.

The US government has offered to sell their F-18 fighters along with the unmanned aircraft **Sea Guardian** to the Indian Navy along with a number of other systems to the Indian armed forces in recent times.

At the moment, the Indian Navy has been assessing the F-18 and the Rafale naval fighters for its present and futuristic requirements as its present fighter is likely to be phased out by the end of this decade or the beginning of next.

The aircraft offered by the American government is said to be the advanced version of the plane which was on offer to the Indian Air Force for its requirement of 126 Multirole Medium Combat Aircraft in which only Rafale and European Eurofighter had been able to meet the qualitative requirements and finally the French plane had been selected.

Even the Medium Multi-Role Combat Aircraft (MMRCA) deal had to be scrapped, the Indian government showed faith in the French fighter and bought 36 of its under a Rs 60,000 crore deal.

The American fighter offered to the Indian Navy can be operated from aircraft carriers.

Both Rafale and F-18 have been showcasing the simulated capability of their respective fighter aircraft to take off and land at the INS Vikramaditya aircraft carrier to the Indian Navy.

In the recent past, the Indian Navy has moved towards American equipment in a big way as its long-range surveillance aircraft fleet consists of 12 P-8I aircraft and would have six more of these in near future.

The Sea King multirole helicopters would also be replaced by 24 MH-60 Romeos which are being acquired under a government to government deal.

American equipment including The C-17 heavy-lift and the C-130J Super Hercules transport aircraft, M-777 ultra-light howitzers, Apache attack and Chinook heavy-lift choppers along with the SiG Sauer assault rifles have become mainstays in the Air Force and the Army in the last one decade.

The Americans have also shared a lot of information regarding the deployment and activities of the Chinese military in the military standoff

<https://economictimes.indiatimes.com/news/defence/united-states-offers-f-18-naval-fighter-jets-for-indian-navys-requirements/articleshow/78907580.cms>

## ISRO to launch earth observation satellite EOS-01 on November 7

*EOS-01 is intended for applications in agriculture, forestry and disaster management support*

Bengaluru: India would launch its latest earth observation satellite EOS-01 and nine international customer spacecraft onboard its PSLV-C49 rocket from the spaceport of Sriharikota in Andhra Pradesh on November 7, ISRO said on October 28.

This is the first launch by the Indian Space Research Organisation since the COVID-19-induced lockdown came into force in March.

ISRO chairman K. Sivan said in June that 10 space missions being prepared for launch in 2020 have been “disturbed” due to the lockdown.

EOS-01 is intended for applications in agriculture, forestry and disaster management support, ISRO said. “The launch is tentatively scheduled at 3.02 p.m. IST on November 7 subject to weather conditions” from the Satish Dhawan Space Centre at Sriharikota, it said in a statement.

The customer satellites are being launched under commercial agreement with NewSpace India Limited (NSIL), Department of Space, the space agency said, without giving further details.

This will be the 51st mission of ISRO’s workhorse, the Polar Satellite Launch Vehicle.

In view of the strict COVID-19 pandemic norms in place at the launch centre, gathering of media personnel there was not planned and the viewing gallery will be closed, ISRO said. However, the live telecast of the launch will be available on ISRO website, Youtube, Facebook and Twitter channels, it added.

Speaking to PTI in June, Dr. Sivan said ISRO will make an assessment of the impact of the lockdown on its missions. “Because of this (pandemic), everything got disturbed. We have to make an assessment after the COVID-19 issue is resolved,” he had said.

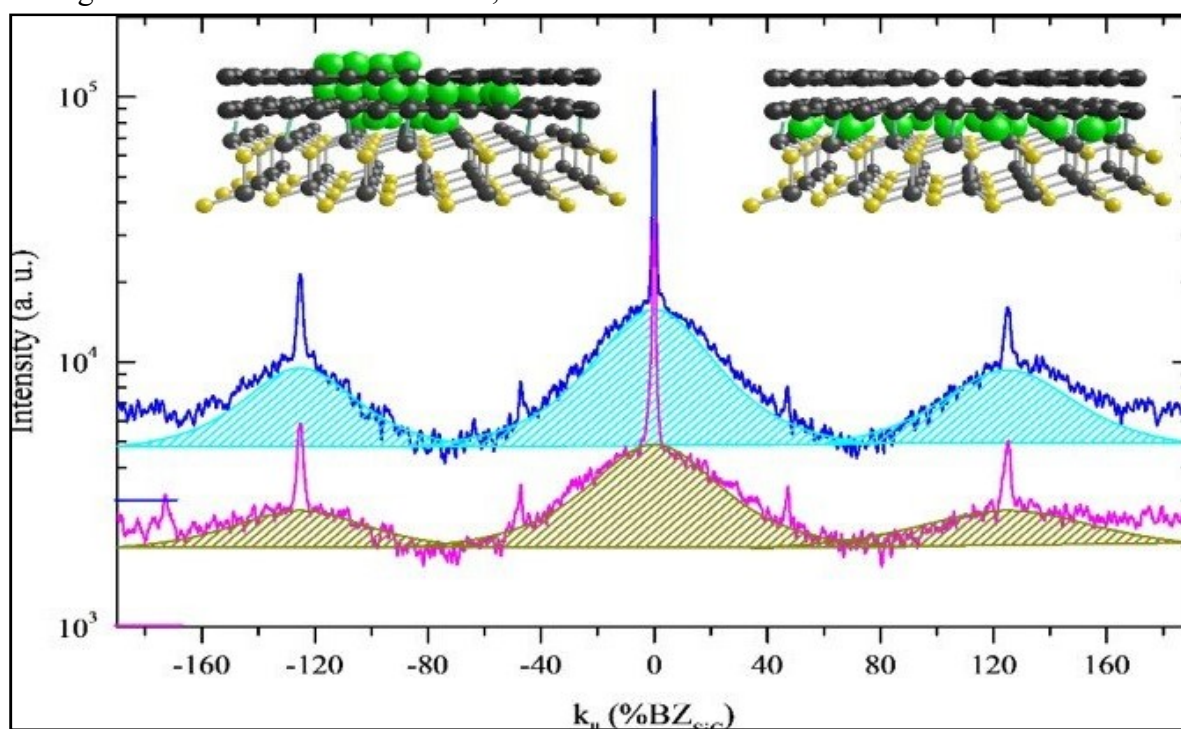
<https://www.thehindu.com/sci-tech/science/isro-to-launch-earth-observation-satellite-eos-01-on-november-7/article32965548.ece>



## Reliable quality-control of graphene and other 2-D materials is routinely possible, researchers say

Graphene and other single-atom-thick substances are a category of wonder materials, with researchers the world over investigating their electronic properties for potential applications in technologies as diverse as solar cells, novel semiconductors, sensors, and energy storage.

The greatest challenge for the design of these single-layer or 2-D materials into all their myriad potential uses is the need for an atom-by-atom perfection and uniformity that can be difficult and painstaking to achieve at such small scales, and difficult to assess as well.



New experiments confirm that the Bell-Shaped-Component (BSC) is a reliable diagnostic of the quality of graphene growth. Credit: U.S. Department of Energy, Ames Laboratory

"We are trying to be more clever than nature in assembling these materials," said Michael C. Tringides, a senior scientist at the U.S. Department of Energy's Ames Laboratory and professor of physics at Iowa State University, who investigates the unique properties of 2-D materials and metals grown on graphene, graphite, and other carbon coated surfaces. "And to do so, we're forcing atoms to assemble in ways they normally would not. One of the major challenges of the field is to reliably produce high quality graphene and other materials like it."

Tringides and other scientists at Ames Laboratory have discovered and confirmed a method which could serve as an easy but reliable way to test the quality of graphene and other 2-D materials. It takes advantage of the very broad background in surface electron diffraction, named the Bell-Shaped-Component (BSC) which strongly correlates to uniformly patterned, or "perfect" graphene.

Understanding the correlation has implications for reliable quality control of 2-D materials in a manufacturing environment.

"This discovery challenges conventional wisdom, but the correlation between this strange phenomenon and high quality graphene is unmistakable. In practical application, we see it



extending to other high-interest 2-D materials that are similar to graphene in having similar uniformity of a single layer," said Tringides.

Last year, Ames Laboratory researchers discovered through low energy electron diffraction—a technique commonly used in physics to study the crystal structure of the surfaces of solid materials—that broad diffraction patterns are an indicator that reliably demonstrates a 2-D material's high quality. It was a feature of high quality graphene that essentially lurked in the background, and had been overlooked in published research because it was the exact opposite of what is generally accepted from diffraction studies—that only sharp, bright diffraction spots should be present. Because that finding was counterintuitive, further investigation was required under different experimental conditions and to understand the origin of the BSC, said Tringides.

First, the scientists grew graphene by annealing, or heating it, through a range of high temperatures, and comparing the growth of the BSC diffraction along with the growth of the other, generally accepted indicator of sharp diffraction spots. The evolution of the broad diffraction background closely mirrored that of the sharper spot, which proved that they are correlated. Secondly, the group then experimented with depositing metal atoms (in this case dysprosium) on the surface and underneath the graphene. Called intercalation, this deposition process is one of the ways scientists can customize 2-D materials for specific functions. In the second experiment, scientists measured the growth of the BSC during intercalation— weak when the metal atoms are at first disordered, and then increasing as the metal atoms snap into place between the graphene and the substrate, creating a uniform layer. So while the BSC was not a textbook diffraction pattern, its cause is textbook quantum mechanics— as electrons are squeezed into a single layer, their wave vectors must spread, creating the broad diffraction pattern.

The research is further discussed in the paper "High Layer Uniformity of Two-Dimensional Materials Demonstrated Surprisingly from Broad Features in Surface Electron Diffraction," authored by S. Chen, M. Horn von Hoegen, P. A. Thiel, A. Kaminski, B. Schrunk, T. Speliotis, E. H. Conrad, and M. C. Tringides; and published in the *Journal of Physical Chemistry Letters*.

**More information:** S. Chen et al, High Layer Uniformity of Two-Dimensional Materials Demonstrated Surprisingly from Broad Features in Surface Electron Diffraction, *The Journal of Physical Chemistry Letters* (2020). DOI: [10.1021/acs.jpcllett.0c02113](https://doi.org/10.1021/acs.jpcllett.0c02113)

**Journal information:** [Journal of Physical Chemistry Letters](https://pubs.acs.org/journal/jpclett)

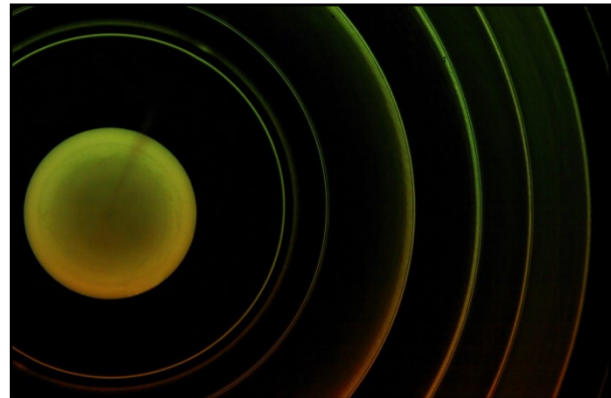
<https://phys.org/news/2020-10-reliable-quality-control-graphene-d-materials.html>

## Physicists circumvent centuries-old theory to cancel magnetic fields

A team of scientists including two physicists at the University of Sussex has found a way to circumvent a 178-year old theory which means they can effectively cancel magnetic fields at a distance. They are the first to be able to do so in a way which has practical benefits.

The work is hoped to have a wide variety of applications. For example, patients with neurological disorders such as Alzheimer's or Parkinson's might in future receive a more accurate diagnosis. With the ability to cancel out 'noisy' external magnetic fields, doctors using magnetic field scanners will be able to see more accurately what is happening in the brain.

The study "Tailoring magnetic fields in inaccessible regions" is published in *Physical Review Letters*. It is an international collaboration between Dr. Mark Bason and Jordi Prat-Camps at the University of Sussex, and Rosa Mach-Batlle and Nuria Del-Valle from the Universitat Autònoma de Barcelona and other institutions.



Credit: CC0 Public Domain

"Earnshaw's Theorem" from 1842 limits the ability to shape magnetic fields. The team were able to calculate an innovative way to circumvent this theory in order to effectively cancel other magnetic fields which can confuse readings in experiments.

In practical terms, they achieved this through creating a device comprised of a careful arrangement of electrical wires. This creates additional fields and so counteracts the effects of the unwanted magnetic field. Scientists have been struggling with this challenge for years but now the team has found a new strategy to deal with these problematic fields. While a similar effect has been achieved at much higher frequencies, this is the first time it has been achieved at low frequencies and static fields—such as biological frequencies—which will unlock a host of useful applications.

Other possible future applications for this work include:

- Quantum technology and quantum computing, in which 'noise' from exterior magnetic fields can affect experimental readings
- Neuroimaging, in which a technique called 'transcranial magnetic stimulation' activates different areas of the brain through magnetic fields. Using the techniques in this paper, doctors might be able to more carefully address areas of the brain needing stimulation.
- Biomedicine, to better control and manipulate nanorobots and magnetic nanoparticles that are moved inside a body by means of external magnetic fields. Potential applications for this development include improved drug delivery and magnetic hyperthermia therapies.

Dr. Rosa Mach-Batlle, the lead author on the paper from the Universitat Autònoma de Barcelona, said: "Starting from the fundamental question of whether it was possible or not to create a magnetic source at a distance, we came up with a strategy for controlling magnetism remotely that we believe could have a significant impact in technologies relying on the magnetic field distribution in inaccessible regions, such as inside of a human body."

Dr. Mark Bason from the School of Mathematical and Physical Sciences at the University of Sussex said: "We've discovered a way to circumvent Earnshaw's theorem which many people didn't imagine was possible. As a physicist, that's pretty exciting. But it's not just a theoretical

exercise as our research might lead to some really important applications: more accurate diagnosis for Motor Neurone Disease patients in future, for example, better understanding of dementia in the brain, or speeding the development of quantum technology."

**More information:** Rosa Mach-Battle et al, Tailoring Magnetic Fields in Inaccessible Regions, *Physical Review Letters* (2020). DOI: [10.1103/PhysRevLett.125.177204](https://doi.org/10.1103/PhysRevLett.125.177204)

**Journal information:** [Physical Review Letters](https://www.phys.org/news/2020-10-physicists-circumvent-centuries-old-theory-cancel.html)

<https://phys.org/news/2020-10-physicists-circumvent-centuries-old-theory-cancel.html>

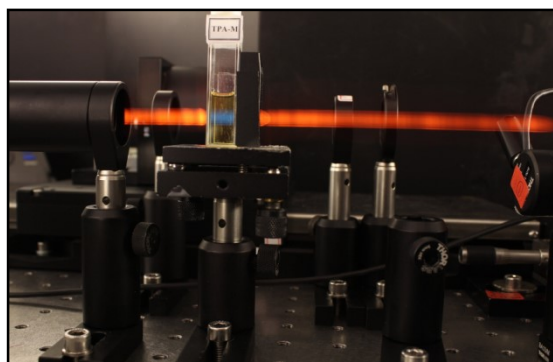


Thu, 29 Oct 2020

## Infrared light antenna powers molecular motor

Light-controlled molecular motors can be used to create functional materials to provide autonomous motion, or in systems that can respond on command. For biological applications, this requires the motors to be driven by low-energy, low-intensity light that penetrates tissue. Chemists at the University of Groningen designed a rotary motor that is efficiently powered by near-infrared light, through adding an antenna to the motor molecule. The design and functionality were presented in the journal *Science Advances* on 28 October.

Ben Feringa, Professor of Organic Chemistry at the University of Groningen, presented the design and construction of the first light-driven unidirectional rotary molecular motor in 1999. In 2016, he was one of three winners of the Nobel Prize in Chemistry, for the design and production of molecular machines. His molecular motors have evolved since, but a major limitation for applications has been that they are powered by ultraviolet light. In many applications, UV light can be harmful to surrounding materials. Attempts to use less energetic near-infrared photons to power these motors have so far been unsuccessful.



The new generation of the molecular motor under Infrared light. Credit: Nong Hoang, University of Groningen

### Energy

Adaptation of the motor molecule to directly accept two low-energy photons instead of a high-energy one has not been successful. That is why scientists in the Feringa laboratory now tried a different approach. Through a covalent bond, the motor molecule was linked to an antenna that can absorb two near-infrared photons. The resulting excitation of the antenna is then passed on to the motor part of the molecule.

Much of this work was carried out by Lukas Pfeifer, a postdoctoral researcher in the Feringa laboratory, who now works at the Swiss École Polytechnique Fédérale in Lausanne. "For the system to work, the energy levels of the antenna and the motor had to be closely tuned," he explains. This meant designing a version of the molecular motor that requires the exact amount of energy that the antenna provides for movement. "And it also needed a linker that allows the antenna to be attached without interfering in the motor's rotation."

### Simple

"This is a direct transfer of the excited state, very similar to the way in which two strings on a guitar will resonate when one of them is struck," explains Maxim Pshenichnikov, Professor of Ultrafast Spectroscopy at the University of Groningen and one of the authors of the *Science Advances* paper. The idea seems simple enough. "If you know how it works, it becomes really simple," says Pshenichnikov. "But the chemical design was certainly not trivial."

A complex sequence of events that sets the motor in motion takes place over a very wide range of times, from picoseconds ( $10^{-12}$  s) to minutes. The different time regimes were studied by Pfeifer using NMR and by Nong Hoang, a Ph.D. student in Pshenichnikov's research group, using ultrafast spectroscopy. First, the antenna captures two near-infrared photons. This is followed by the energy transfer that initiates motor motion. Fortunately, the design worked very efficiently.

### **Dream**

"After many years of designing molecular motors, being able to overcome the need for high-energy UV light to power these molecular rotary motors is like a dream come true," says Ben Feringa. "I feel that our results represent an important milestone in the design of artificial molecular motors and offer many prospects for future applications, ranging from responsive materials to biomolecular systems."

The next step is to simplify the structure of the motor-antenna complex. That would allow the introduction of additional functionalities. A possible application of the new motor molecule is to function as a trigger to release the contents of a vesicle in a biological system. Pshenichnikov: "I am really curious to see how the next generation of this system will develop."

### **Simple Science Summary**

In 1999, Ben Feringa, professor of organic chemistry at the University of Groningen, created the first light-driven molecular motor. These tiny motors could be used in all kinds of nanotechnology applications, for example in the delivery of drugs. However, they are powered by ultraviolet light, which can be harmful. Scientists have been looking for ways to use near-infrared light instead, but all attempts so far have been unsuccessful. Researchers from the University of Groningen now designed an antenna that absorbs energy from near-infrared light. This antenna was attached to the motor molecule, where it transmits the energy directly to the axle that drives motor movement. The result is a motor molecule that is powered by near-infrared light, which brings medical applications one step closer.

**More information:** Powering rotary molecular motors with low-intensity near-infrared light. *Science Advances* (2020). [advances.sciencemag.org/lookup...1126/sciadv.eabb6165](https://advances.sciencemag.org/lookup...1126/sciadv.eabb6165)

**Journal information:** [Science Advances](https://phys.org/news/2020-10-infrared-antenna-powers-molecular-motor.html)

<https://phys.org/news/2020-10-infrared-antenna-powers-molecular-motor.html>

## India UK strike new COVID-19 research tie-ups

*By Aditi Khanna*

London: India and the UK on Wednesday clinched new partnerships to boost bilateral cooperation on combating the coronavirus pandemic as part of the 10th UK-India Economic and Financial Dialogue (EFD), held virtually following the COVID-19 lockdown and travel constraints.

A GBP 8-million joint funding initiative announced as part of the EFD outcomes will support collaborative research focused on understanding the severity of COVID-19 in South Asian populations in India.

The UK Research and Innovation (UKRI) and the Department of Biotechnology (DBT) in Indian Ministry of Science and Technology said their collaborative research will support research projects that are trying to understand the pandemic through the study of related ethnic groups in different environments in both countries.

"This joint programme builds on the strong foundation of India-UK research collaboration and is an opportunity to bring together our collective expertise to understand the severity of COVID-19 infection in South Asian populations of both India and the UK," said Dr Renu Swarup, Secretary of the Department of Biotechnology.

"This pandemic has brought together scientific research groups nationally and globally to address key research questions. Faced with one of the biggest challenges of our time, research from this DBT-UKRI collaboration will be important in understanding the differential response among these two populations. Improved understanding in this regard will empower us in planning more effective interventions to fight COVID-19 pandemic and any such events in future," she said.

The DBT and UKRI said the latest funding, of GBP 4 million each, builds on the significant rapid investment in COVID-19 research since the start of the pandemic.

Successful projects will focus on mechanistic studies of the disease and its sequela; virology, immunity and pathophysiology; and epidemiology and behavioural science.

Dame Ottoline Leyser, Chief Executive of UK Research and Innovation, said: "In the UK, emerging evidence shows that, after taking account of age and other sociodemographic factors, people from Black, Asian and minority ethnic (BAME) backgrounds are nearly twice as likely to die of COVID-19 as white people. There is an urgent need for more data on why COVID-19 disproportionately impacts people from minority ethnic backgrounds in the UK and around the world.

"Through the UKRI-DBT COVID-19 Partnership Initiative we hope to support collaborative UK-India research teams to investigate exactly that. We hope the findings from this new programme will help to mitigate the severity of COVID-19 in the UK and India."

A second COVID-19 related project, detailed in the joint statement issued by finance minister Nirmala Sitharaman and UK Chancellor Rishi Sunak at the end of their dialogue, involves the UK's Department of Health and Social Care (DHSC) contributing to India's Coronavirus Joint Response Plan (JRP) and antimicrobial resistance (AMR) via the World Health Organisation (WHO), with an initial amount of GBP 600,000.



This will provide a platform for further bilateral cooperation on AMR through a Fleming Fund partnership with the Ministry of Health and Family Welfare in the future. PTI AK IND  
(This story has not been edited by THE WEEK and is auto-generated from PTI)

<https://www.theweek.in/wire-updates/international/2020/10/28/fgn43-virus-uk-india-research.html>



Thu, 29 Oct 2020

## 80 per cent Covid-19 patients in Spanish study had vitamin D deficiency

*A study of over 200 Covid-19 cases in a hospital in Spain found that about 80 per cent patients had vitamin D deficiency*

A study of over 200 Covid-19 cases in a hospital in Spain found that about 80 per cent patients had vitamin D deficiency, scientists said on Wednesday.

However, the study published in the Journal of Clinical Endocrinology & Metabolism, did not find any relationship between vitamin D concentrations or vitamin deficiency and the severity of the disease.

The researchers found 80 per cent of 216 Covid-19 patients at the Hospital Universitario Marques de Valdecilla had vitamin D deficiency, and men had lower vitamin D levels than women.



The researchers found 80 per cent of 216 Covid-19 patients at the Hospital Universitario Marques de Valdecilla had vitamin D deficiency, and men had lower vitamin D levels than women. (Pixabay)

Covid-19 patients with lower vitamin D levels also had raised serum levels of inflammatory markers such as ferritin and D-dimer.

“Vitamin D treatment should be recommended in Covid-19 patients with low levels of vitamin D circulating in the blood since this approach might have beneficial effects in both the musculoskeletal and the immune system,” said Jose L. Hernandez, of the University of Cantabria in Santander, Spain.

“One approach is to identify and treat vitamin D deficiency, especially in high-risk individuals such as the elderly, patients with comorbidities, and nursing home residents, who are the main target population for the Covid-19,” said Hernandez.

Vitamin D controls blood calcium concentration and impacts the immune system, the researchers said.

Vitamin D deficiency has been linked to a variety of health concerns, although research is still underway into why the hormone impacts other systems of the body, they said.

Many studies point to the beneficial effect of vitamin D on the immune system, especially regarding protection against infections.

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

<https://www.hindustantimes.com/health/80-per-cent-covid-19-patients-in-spanish-study-had-vitamin-d-deficiency/story-BTRNKgYsDFxNIDljWbqrBJ.html>

