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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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Wed, 23 June 2021

# DRDO to test 'Agni Prime' missile between June 28 and 29

*A defence official associated with the project said the state-of-the-art Agni Prime has been developed with the cutting-edge technologies used in 4,000-km range Agni-IV and 5,000-km Agni-V missiles*

*By Hemant Kumar Rout*

Bhubaneswar: After a lull of more than three months due to the second wave of COVID-19 pandemic leading to restriction in movement of manpower, material and machinery, the Defence Research and Development Organisation (DRDO) is back in action.

The premier defence agency is readying for the trial of a new Agni series missile early next week. Defence sources said the brand new missile, a variant of Agni-I, will be flight tested from a defence facility off Odisha coast any time between June 28 and 29. Initially christened as 'Agni Prime', the missile will have a strike range of 1,000 km to 1,500 km.



Representational Image. (File | AP)

Preparation is in full swing at the test facility for the past over a week amid the COVID restrictions. "Missile assembling and integration with the launcher, exclusively developed for the missile, are nearing end. A notice to airmen (Notam) has already been issued for the scheduled test of the missile. If everything goes as per plan, the weapon will be test fired on Monday," the source told *The New Indian Express*.

A defence official associated with the Agni project said the state-of-the-art Agni Prime has been developed with the cutting-edge technologies used in 4,000-km range Agni-IV and 5,000-km Agni-V missiles.

The two-stage and solid fuelled missile will be guided by the inertial navigation systems based on advanced ring-laser gyroscopes. Its both stages have composite rocket motors and guidance systems are equipped with electromechanical actuators.

"The Agni Prime will be two-stage unlike the single-stage Agni-I and will have a canister version to be fired from both road and rail mobile launchers. The sleek missile that weighs less than that of the previous variant due to the integration of new technologies will be more lethal in terms of power and killing ability," the official said, refusing to divulge more specifications of the weapon.

<https://www.newindianexpress.com/nation/2021/jun/23/drdo-to-test-agni-prime-missile-between-june-28-and-29-2320238.html>

## Pune: DRDO facilities develop pilot escape path clearance system for combat aircraft

*Armament Research and Development Establishment (ARDE) and High Energy Material Research Laboratory (HEMRL) developed the Canopy Severance System (CSS) for indigenous aircraft including LCA Tejas, HJT-36 and HTT-40*

Pune: A ceremony marking the transfer of technology of a canopy severance system (CSS) — an escape path clearance system for the pilot in case of emergencies — developed by Defence Research and Development (DRDO) was held in Pune on Monday.



KD Deodhar, head of the CSS project, gave a brief introduction to the system. ARDE director Dr V Venkateswara Rao and HEMRL director KPS Murthy handed over the certificate to S Pramanik, chairman and managing director and R Chandra, general manager of the GOCL Corporation Ltd, the production agency.

The CSS provides safe passage by pre-weakening or severing the canopy (the transparent enclosure over the cockpit of fighter planes) to help the pilot escape in the shortest possible time. Pune-based DRDO facilities Armament Research and Development Establishment (ARDE) and High Energy Material Research Laboratory (HEMRL) developed CSS for indigenous aircraft, including LCA Tejas, HJT-36 and HTT-40.

KD Deodhar, head of the project, gave a brief introduction to the system. ARDE director Dr V Venkateswara Rao and HEMRL director KPS Murthy handed over the certificate to S Pramanik, chairperson and managing director and R Chandra, general manager of GOCL Corporation Ltd, the production agency.

The CSS project for LCA Tejas and its trainer aircraft was tested successfully in London and Moscow. The GOCL has already supplied eight units of the CSS after fulfilling qualification and functional tests. All aircraft are undergoing test flights with CSS.

<https://indianexpress.com/article/cities/pune/pune-based-drdo-facilities-develop-pilot-escape-path-clearance-system-for-combat-aircraft-7370532/>

## Three hospitals get oxygen plants from DRDO, NHAI

Chennai: With the National Highways Authority of India (NHAI) completing civil and electrical works, oxygen generating plants have been commissioned at hospitals in K.K. Nagar, Perambalur and Virudhunagar.

“The hospitals themselves provided the copper tubing, from which the oxygen is supplied to the beds. The plants were provided by the Defence Research and Development Organisation (DRDO),” said an official in the NHAI.

Following a shortage of oxygen for COVID-19 patients in hospitals across the country, the Central government had announced that the DRDO would supply oxygen plants and that the NHAI would undertake the civil works. Tamil Nadu was sanctioned plants at 142 hospitals after consultation with the State.

“Work to install others is in progress and some are likely to be commissioned shortly,” another official said.

Meanwhile, the Chennai Petroleum Corporation Limited (CPCL) has set up a makeshift hospital with oxygen supplies on its campus in Manali.

“We have diverted oxygen from our refinery by laying a new pipeline to this facility that can house up to 150 persons at a time. But since the number of patients is less, right now oxygen required to support them is being supplied. Also, work to install an oxygen bottling plant is nearing completion,” a company official said.

<https://www.thehindu.com/news/cities/chennai/three-hospitals-get-oxygen-plants-from-drdo-nhai/article34919628.ece>



A distributor loading oxygen cylinders on to a vehicle. Photograph used for representational purposes only | Photo Credit: VEDHAN M

## जिले में चार ऑक्सीजन संयंत्र होंगे स्थापित

बैतूल: जिले में कोरोना की संभावित तीसरी लहर से निपटने के लिए जिला प्रशासन तैयारियों में जुटा हुआ है। दूसरी लहर में ऑक्सीजन की कमी के कारण आई परेशानी को दूर करने के लिए चार ऑक्सीजन संयंत्र स्थापित किए जा रहे हैं। इस माह के अंत तक जिला अस्पताल में 400 एलपीएम(लीटर प्रति मिनट) क्षमता का संयंत्र स्थापित कर दिया जाएगा। इसके लिए ठेका कंपनी गेस्कॉन के द्वारा लिक्विड ऑक्सीजन के सिलिंडर पहुंचा दिए गए हैं, शेष मशीनें भी 24 जून तक बैतूल पहुंच जाएंगी। इसके अलावा घोड़ाडोंगरी में हाइट्स कंपनी के माध्यम से 300 एलपीएम क्षमता का संयंत्र अगस्त माह तक प्रारंभ हो जाएगा। कलेक्टर अमनबीर सिंह बैस ने कोरोना की संभावित तीसरी लहर से निपटने के लिए जिले में की जा रही तैयारियों की जानकारी देते हुए बताया कि बच्चों पर खासतौर से खतरा देखते हुए जिला अस्पताल में पीआईसीयू और सभी 10 ब्लॉकों में स्थित सामुदायिक स्वास्थ्य केंद्रों पर आइसीयू बनाए जा रहे हैं।

कलेक्टर बैस ने बताया कि जिला अस्पताल में डीआरडीओ के द्वारा 1000 एलपीएम क्षमता का ऑक्सीजन संयंत्र सितंबर माह में स्थापित किया जाएगा। यहां पर वर्तमान में लगाए जा रहे 400 एलपीएम क्षमता के संयंत्र को मुलताई में स्थापित कर दिया जाएगा। इसके अलावा सतपुड़ा ताप विद्युत गृह सारणी में भी 80 एलपीएम क्षमता का संयंत्र अगले माह स्थापित हो जाएगा। जिले में चार ऑक्सीजन संयंत्र स्थापित हो जाने से आने वाले दिनों में मरीजों को इसकी कमी का सामना नहीं करना पड़ेगा। जिला अस्पताल में लगाए जाने वाले संयंत्र से ही अन्य सामुदायिक स्वास्थ्य केंद्रों के लिए ऑक्सीजन सिलिंडर भरे भी जा सकेंगे।

जिला अस्पताल में बच्चों के लिए 15 बेड का पीआईसीयू तैयार किया जा रहा है। इसके अलावा सभी ब्लॉक मुख्यालयों पर स्थित सामुदायिक स्वास्थ्य केंद्रों में पांच-पांच बेड के आइसीयू भी बनाए जा रहे हैं। इसके लिए सांसद व विधायक निधि से सहयोग लेने के साथ ही आपदा प्रबंधन की राशि का भी उपयोग किया जा रहा है। सीएमएचओ डॉ. एके तिवारी ने बताया कि जिला अस्पताल के पीआईसीयू में सभी सुविधाएं उपलब्ध होंगी। इसके लिए शासन ने जरूरी उपकरणों की सूची मांगी थी, जो कि भेज दी गई हैं। जल्द ही यह उपकरण उपलब्ध होने की उम्मीद है। इसी तरह सीएमसी के आइसीयू में मल्टीपैरा मॉनिटर, इन्फ्यूजन पंप, सेमी आटोमेटिक एनालायजर, आइसीयू बेड्स उपलब्ध होंगे। यहां सीटी स्कैन छोड़कर डी-डायमर समेत सभी तरह की जांच भी होगी। यहां के लिए डिजिटल एक्स-रे समेत अन्य उपकरणों के ऑर्डर भी दिए जा चुके हैं।

महामारियों के लिए बनाया गया टास्क फोर्स

कलेक्टर बैस ने बताया कि केवल कोरोना ही नहीं बल्कि हर तरह की महामारी के लिए जिले में टास्क फोर्स बनाया गया है। इसके अलावा हर ब्लॉक में भी 10-10 कर्मठ व कर्तव्यनिष्ठ अधिकारी-कर्मचारियों की टीम बनाई गई है। कोरोना के लिए रखे गए कर्मचारियों को भी नहीं हटाया जा रहा है बल्कि उन्हें इससे निपटने का खासा अनुभव हो चुका है। इसलिए उनके अनुभव का लाभ लिया जा रहा है। इससे यदि तीसरी लहर आती भी है तो नए सिरे से तैयारियां करने की बिल्कुल जरूरत नहीं पड़ेगी। एक सवाल के जवाब में उन्होंने बताया कि निजी अस्पतालों के बिलों की भी जांच-पड़ताल करवाई जा रही है।



टीकाकरण के लिए प्रेरित करें:

कलेक्टर ने सभी लोगों से अपील की है कि कोरोना संक्रमण को रोकने के लिए टीका सुरक्षा चक्र है। इसके लिए सभी को प्रेरित करना आवश्यक है। जिले में महा अभियान चल रहा है जिसमें बड़ी संख्या में लोग केंद्रों पर पहुंच रहे हैं। हम सब मिलकर प्रयास करेंगे तो इस अभियान को पूरी कामयाबी मिलेगी और कोरोना का खतरा कम होगा।

<https://www.naidunia.com/madhya-pradesh/betul-betul-news-6946488>



Wed, 23 June 2021

## State to get 38 PSA O2 plants under PM Cares Fund

Ranchi: As many as 38 Pressure Swing Absorption (PSA) oxygen plants will be set up across the 24 districts of the State under PM Cares fund in a bid to ensure sufficient supply of Liquid Medical Oxygen (LMO) to patients in need of breathing support, health officials said on Tuesday.

“Each of the 24 districts will get at least one PSA plant under the PM Cares fund in our state. The Centre has issued a final list of 1215 PSA plants that will come up in different states and Jharkhand will get 38 of them,” said the nodal officer for Information, Education and Communication (IEC) wing of the health department, Dr. Siddharth Tripathi.

Several states, including Jharkhand, faced an acute crisis of LMO during the second wave of Covid-19, which wreaked havoc across India. Lack of logistics emerged as one of the greatest challenges for the country for movement of oxygen from one state to another, and the delay in the process led to several deaths, sources said. The PSA plants to come up in the state will ease the pressure of logistics in case of an emergency that may trigger an oxygen shortage, they added.

The Defense Research and Development Organisation (DRDO) will ensure the site preparation and installation of at least 29 of the 38 PSA plants, while the Central Medical Services Society (CMSS) and HLL Infra Services Limited (HITES) will work for the site preparation and installation of four and five PSA plants respectively.

As per details shared by the Centre, at least three PSA plants each will be set up in Ranchi, East Singhbhum, West Singhbhum and Bokaro. Two each will come up in Dhanbad, Deoghar, Dumka, Giridih, Latehar and Hazaribag, while one PSA plant will be set up in each of the remaining 14 districts in the state.

This time around, the Centre has categorically mentioned in its communique to the State that the latter will have to appoint at least two technical persons for each PSA plant and one nodal officer for the each of the hospitals benefiting from them in a bid to avert technical glitches, which earlier marred the efforts of the Centre while providing free ventilators to states under the PM Cares fund. Several states, including Jharkhand, had complained about defunct ventilators and lack of assistance from the Centre in troubleshooting during the second wave of Covid-19 earlier this year, officials said.

The nodal officers and technical staff appointed for the PSA plants will undergo special training conducted by the Centre and work as point persons for the PSA monitoring system of the Centre, officials said. The plants will only start functioning after a clearance from the nodal officers and the technical persons appointed for the task, officials said, adding that this practice would help in troubleshooting. The PSA monitoring team of the Centre will directly be in touch with the point persons for the different PSA plants.

<https://www.dailypioneer.com/2021/state-editions/state-to-get-38-psa-o2-plants-under-pm-cares-fund.html>

## Jamshedpur's MGM and Sadar hospital to get PSA oxygen plants under PM Care fund

*State to get 38 PSA plants, nodal officer and two technical personnel to be trained for each plant*

Ranchi/Jamshedpur: Three health centres in East Singhbhum including two in Jamshedpur will see pressure swing absorption (PSA) oxygen plants under PM-Cares fund in a bid to ensure sufficient supply of liquid medical oxygen to health centres for patients suffering breathing distress due to Covid or other diseases.

The three health centres in Jamshedpur are among the 38 health centres identified by the Union health ministry for installation of the PSA oxygen plants across the 24 districts of Jharkhand.

The facility which will see installation of the PSA oxygen plants in Jamshedpur include 500-bed MGM Medical College and Hospital (construction already started) in Sakchi, 200-bed Sadar Hospital in Khasmahal (Parsudih) and 50-bed Ghatshila sub-divisional hospital at Ghatshila.



The PSA plants at MGM Medical College and Hospital will have a capacity of 600 litres per minute (LPM) while the one at Sadar Hospital will have a capacity of 1000 LPM. The Ghatshila sub-divisional hospital will have a capacity of 250 LPM.

The letter by the secretary health ministry has directed the Jharkhand government to appoint at least two technical persons for each PSA plant and one nodal officer for the each of the hospitals benefitting from them in a bid to avert technical glitches, which earlier marred the Centre's efforts of providing free ventilators to states under the PM-Cares fund. Several states, including Jharkhand, had complained about defunct ventilators and lack of assistance from the Centre in troubleshooting during the second wave of Covid-19 earlier this year.

"Each of the 24 districts will get at least one PSA plant under the PM-Cares fund in Jharkhand. We have received the final list from the Centre and the work for setting up the plants will begin soon," said state health department nodal officer (IEC) Siddharth Tripathi.

The Centre, under its PM-Cares fund initiative, will be providing 1,215 PSA oxygen plants to states and Union territories across India and Jharkhand has been assured 38 plants under this scheme. As per details shared by the health department, at least three PSA plants each will be set up in Ranchi, East Singhbhum, West Singhbhum and Bokaro. Two each will come up in Dhanbad, Deoghar, Dumka, Giridih, Latehar and Hazaribagh, while one PSA plant will be set up in each of the remaining 14 districts in the state.

The Defence Research and Development Organisation (DRDO) will ensure the site preparation and installation of at least 29 of the 38 PSA plants, while the Central Medical Services Society (CMSS) and HLL Infra Services Limited (HITES) will work for the site preparation and installation of four and five PSA plants respectively.

Nodal officers and technical staff appointed for the PSA plants will undergo special training conducted by the Centre and work as point persons for the PSA monitoring system of the Centre, officials said. The plants will only start functioning after a clearance from nodal officers and technical persons appointed for the task, officials said, adding that this practice would help in troubleshooting. The PSA monitoring team of the Centre will directly be in touch with the point persons for the different PSA plants.

<https://avenuemail.in/jamshedpurs-mgm-and-sadar-hospital-to-get-psa-oxygen-plants-under-pm-care-fund/>



## Amit Shah reviews projects, calls for timely completion

*The Union Home Minister sought details of preparedness for possible third wave of Covid-19, held a meeting with G'nagar MLAs*

Union Home Minister Amit Shah reviewed ongoing projects in the state on Tuesday. In a meeting with Chief Minister Vijay Rupani and senior officials, he is said to have asked them to expedite the projects to ensure timely completion.

Shah, who is on a two-day visit to the state, held a meeting with all MLAs of his constituency to review the progress of various works. In the meeting with the CM, Shah reviewed the progress of various projects like the bullet train, metro rail, Sabarmati Ashram and Sabarmati Riverfront, which he said were dream projects of Prime Minister Narendra Modi. A majority of these projects are under his Gandhinagar constituency.



Amit Shah, Vijay Rupani

He also sought details about the preparedness of the state government for the possible third wave of Corona. He viewed the presentation made by the state government about the work done during the second wave. He also sought details about Dhanvantri hospital set up by the DRDO.

The meeting was attended by the Chief Minister, BJP state president C R Paatil and senior IAS officers, including state Chief Secretary Anil Mukim, CM's Chief Principal Secretary K Kailashnathan and Additional Chief Secretary, Industries, Dr Rajiv Kumar Gupta.

Earlier, Shah held a meeting with Paatil and made suggestions about steps to be taken in view of 2022 Assembly elections. He stressed for better coordination between the government and the organisation and asked them to work unitedly, sinking all differences.

In the morning, Shah met with office bearers of his residential society and then attended a tree planting programme at Bodakdev. He also held a meeting with in-charge of north Gujarat, Rajni Patel, in-charge of Ahmedabad, Pradip Vaghela, Kalol taluka BJP president and others. Revenue minister Kaushik Patel was also present in the meeting.

“Held a meeting with all the MLAs of Gandhinagar Lok Sabha constituency and party presidents of Gandhinagar and Kalol taluka to review the progress of various developmental works. I am confident that we all will make Gandhinagar seat the most developed Lok Sabha constituency of the country under the leadership of Modiji,” Shah tweeted.

<https://ahmedabadmirror.com/amit-shah-reviews-projects-calls-for-timely-completion/81801911.html>

## ‘Ensured beds, oxygen for every patient’

By Zehru Nissa

When visuals of healthcare infrastructure crumbling under patient load of COVID19 from many states hit our screens in April, fears and apprehensions ran amok in J&K. Second wave hit us hard. Additional Chief Secretary J&K Government, Atal Dulloo (AD) heads the Health and Medical Education Department here and led the fight against the Virus. He talks at length about the challenges faced in the Second Wave and Preparation for the Third Wave in an exclusive interview with Greater Kashmir correspondent Zehru Nissa.



**1. We lost over 2300 people in the Second Wave, between April and now. What is your assessment of our performance in reduction of mortality?**

**AD:** Compared to average mortality rate at National level, ours mortality rate is lower. We have been able to keep death under control. We could have been further able to reduce the deaths had we not had a scenario where people showed up at the hospitals late, or tested late when the symptoms were full blown. The second factor that contributed to deaths were the Variants of Concern that were circulating in J&K. We had Delta and Alpha variants reported in a huge proportion of our cases. The Delta variant was more severe while Alpha variant was more severe. These two reasons contributed a lot to our mortality. Of course there is always a scope to improve our performance as far as clinical care is concerned. We are trying to do that and reduce the mortality further.

**2. Second wave mortality was lesser than the first wave mortality in terms of percentage. Many attribute it to the mutated virus. What changes were made infrastructure-wise to minimise deaths?**

**AD:** Our most significant achievement has been that no one was denied a bed and no one was denied oxygen. Even at the peak, we had vacant beds. Many people opted to stay home and reported late to hospitals, many times resulting in an uncalled for outcome – severe illness or death. But we had a good capacity to tide through the wave because healthcare infrastructure saw a major boost.

We ramped up capacity of Category I, II and III Hospitals and the number of oxygen beds and number of ICU beds. Cat I beds increased from 800 to 2200, Cat II beds increased from 1800 to 4200, Cat III beds increased from 4100 to 12000 beds. We were able to increase the much needed oxygen supported beds from 660 to 6100 beds, nearly nine times. The ICU beds increased from 215 to 687 now. This was a major exercise to find beds.

**3. Peripheral healthcare has not been able to share the burden of COVID19. What have been the major lacunae?**

**AD:** That is right to some extent but you see we have been able to increase our ICU beds 2.5 times, a good number of these in the peripheral sector. In each of our DRDO Hospitals – Jammu and Kashmir, we have been able to set up 125 ICU beds. Our referral hospitals are meant to cater to severely sick patients and we were able to create more ICU beds at GMC Jammu, GMC Srinagar’s SMHS Hospital, SKIMS Soura by utilizing ventilators from field (peripheral healthcare), those that were yet to be installed and utilized. These had been arranged through the PM Cares fund.

We were able to increase ventilators but ventilators have a limited use in our settings. Not many families opt for invasive ventilation for their patients. BIPAPS are being used well and we have a good number of those now.

**4. Oxygen capacity increased in April and May but high-flow is still a problem in most districts? What is happening on that front?**

**AD:** It started in August last year when 82 oxygen plants were sanctioned for us. Of these, 43 have been made functional, many at district level. It increased our capacity to 53000 liters per minute from 15000 liters - 350 percent increase. We are in the process of installing and making the rest of the oxygen plants functional to augment infrastructure at all levels.

Only late last week, GoI sanctioned 32 more oxygen generation plants for us and work will soon start on these. We are also setting up oxygen generation plants in sub-district hospitals and primary health centers with World bank assistance. We will have 30 oxygen plants, 15 each for Jammu and Kashmir divisions. All of this sums up to 144 oxygen generation plants in the UT. Not all of this is in big hospitals. A number of peripheral hospitals, district level and lower, and new GMC have been included and their oxygen capacity is witnessing a major boost.

**5. Much in the pipeline, what is the timeline for completion?**

**AD:** Many of these are under progress and by August, we hope to see a majority of these up and running.

**6. Before the third wave is projected to hit?**

**AD:** Let us hope we don't have the Third Wave.

**7. ICUs have a limited role but there are none for COVID out of Srinagar. Any plans on this?**

**AD:** The Action Plan submitted by the Apex Committee on Third Wave preparation has recommended that ICU beds be increased in medical college hospitals. If we are able to get financial support, we would want to have more ICU beds in these Institutions. We have already proposed to GoI and the State Government and we are hopeful to get a sanction on these soon.

**8. A ventilator is nothing without manpower and manpower is scarce to come by. Has J&K overcome any shortage in this regard?**

**AD:** We have two strategies to improve our manpower scenario – train the existing human resource for delivering critical care and recruit, wherever necessary. We have issued an order to all the medical colleges in J&K, directorates of health and others to identify and send us a list of people who we will get trained in intensive and critical care. These will be trained in GMC Srinagar and Jammu, SKIMS Soura and probably outside too if necessary. We have also recruited manpower to work in ICU settings at our two new DRDO hospitals – Anesthesia Assistants, Lab Technicians, Nurses, Paramedical staff, X-ray technicians and other categories. Recruitment will continue and will be need based.

**9. Healthcare has been suspended for all other patients except COVID. Any chance it will be resumed soon?**

**AD:** We understand the significance of resuming non-COVID activities as soon as possible. We have started OPDs in GMC Jammu recently, in GMC Srinagar too OPDs will restart soon in a phased manner. We are working closely to get our designated hospitals resume non-covid activities and equipping the DRDO hospitals to cater to the requirements of the pandemic, as much as they can. Right now, the patient load has decreased so we can do that.

**10. Third Wave is being feared for its perceived magnitude. What is our preparation?**

**AD:** The Third Wave Committee that has been having consultation with specialists from all the relevant fields on better preparation for third wave has been very strongly recommending that we are able to identify variants early. This is possible if we start Genome sequencing here and we are exploring the possibilities on this front. It is also important, as per the Committee, that we have a better and more vigorous surveillance to pick up early trends. We also need to ramp up our ICU capacity and as I said, it is underway. We are also improving our Ambulance Services and making Mobile Testing possible for far-flung areas.

### 11. Are we seeing any progress on projects like Children Hospital?

**AD:** Children Hospital has been delayed due to the various changes it saw in the project plan since its inception. It was a 200 bedded hospital earlier which later changed to 500 bedded Mother and Child Hospital and then later to an exclusive Children Hospital. Then there was cost escalation and many administrative approvals were required. It should be complete now.

### 12. Medical Education, especially undergraduate education, has also taken a hit. What is the outlook for that?

**AD:** As the situation improves, we will consider starting MBBS classes on campuses. Coming months are crucial. Post-graduate classes were never halted and are going on, examinations too.

<https://www.greaterkashmir.com/todays-paper/ensured-beds-oxygen-for-every-patient>

## Defence News

## Defence Strategic: National/International



Press Information Bureau  
Government of India

Ministry of Defence

Tue, 22 June 2021 2:23PM

### MoD signs contract with GSL for construction of two Pollution Control Vessels for Indian Coast Guard

Ministry of Defence signed a contract with Goa Shipyard Ltd (GSL) for construction of two Pollution Control Vessels (PCVs) for Indian Coast Guard (ICG) at a cost of about Rs 583 crore, on June 22, 2021. These Special Role ships will be indigenously designed, developed and built by GSL. The acquisition is under 'Buy Indian - Indigenously Designed Developed & Manufactured (Buy Indian-IDDMD)', the highest priority category for defence capital procurements. The acquisition will significantly augment the capability of ICG to respond to Oil spill disasters at sea and also enhance Pollution Response (PR) efficiency. These two vessels are scheduled for delivery by November 2024 and May 2025 respectively.



At present, ICG has three PCVs in its fleet at Mumbai, Visakhapatnam and Porbander to carry out dedicated Pollution Surveillance, Oil spill monitoring/Response operations in Indian EEZ and around islands. The new PCVs planned are for pollution response requirements in Eastern and the ecologically sensitive Andaman & Nicobar Regions. The vessels, with capability of operating helicopter onboard, will have many advanced features with modern PR equipment of niche technology for containing, recovering and dispersing of marine oil spill.

While meeting the objectives of AatmaNirbhar Bharat Abhiyan, the contract would further boost the indigenous shipbuilding capability and increase employment opportunities in the shipbuilding sector that involves around 200 MSME vendors.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1729353>



पत्र सूचना कार्यालय  
भारत सरकार

रक्षा मंत्रालय

Tue, 22 June 2021 2:23PM

## रक्षा मंत्रालय ने भारतीय तटरक्षक के लिए दो प्रदूषण नियंत्रण जहाजों के निर्माण हेतु जीएसएल के साथ अनुबंध पर हस्ताक्षर किए

रक्षा मंत्रालय ने 22 जून, 2021 को भारतीय तटरक्षक (आईसीजी) के लिए लगभग 583 करोड़ रुपये की लागत से दो प्रदूषण नियंत्रण जहाजों (पीसीवी) के निर्माण हेतु गोवा शिपयार्ड लिमिटेड (जीएसएल) के साथ एक अनुबंध पर हस्ताक्षर किए। इन विशेष भूमिका वाले जहाजों को स्वदेशी रूप से डिजाइन, विकसित और जीएसएल द्वारा निर्मित किया जाएगा। यह अधिग्रहण 'बाय इंडियन-स्वदेशी रूप से डिजाइन, विकसित और निर्मित (बाय इंडियन-आईडीडीएम) के तहत किया गया है जो रक्षा पूंजी खरीद के अंतर्गत सर्वोच्च प्राथमिकता श्रेणी है। इस अधिग्रहण से समुद्र में तेल रिसाव आपदाओं से निपटने के लिए आईसीजी की क्षमता में काफी वृद्धि होगी और प्रदूषण प्रतिक्रिया (पीआर) दक्षता में भी बढ़ोतरी होगी। इन दोनों जहाजों को क्रमशः नवंबर 2024 और मई 2025 तक डिलीवरी के लिए निर्धारित किया गया है।



वर्तमान में आईसीजी के पास मुंबई, विशाखापत्तनम और पोरबंदर में अपने बेड़े में तीन पीसीवी हैं ताकि भारतीय ईईजेड और आसपास के द्वीपों में समर्पित प्रदूषण निगरानी, तेल रिसाव निगरानी/ प्रतिक्रिया अभियान चलाया जा सके। जिन नये पीसीवी की योजना बनाई गई है वो पूर्वी क्षेत्र तथा पारिस्थितिकी रूप से संवेदनशील अंडमान और निकोबार क्षेत्रों में प्रदूषण प्रतिक्रिया संबंधी ज़रूरतों के लिए हैं। इन पर हेलीकॉप्टर संचालन की क्षमता के साथ अनेक उन्नत सुविधाएं होंगी जिनमें समुद्र में तेल रिसाव के लिहाज से तेल को रोकने, संग्रहित करने तथा फैलाव के लिए आला प्रौद्योगिकी वाले पीआर उपकरण होंगे।

आत्मनिर्भर भारत अभियान के उद्देश्यों को पूरा करते हुए यह अनुबंध स्वदेशी जहाज निर्माण क्षमता को और बढ़ावा देगा और जहाज निर्माण क्षेत्र में रोजगार के अवसरों को बढ़ाएगा जिसमें लगभग 200 एमएसएमई विक्रेता शामिल हैं।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1729480>



# After Galwan, Chinese PLA realized they need to be better trained and better prepared: CDS Gen Bipin Rawat

*Chief of Defence Staff General Bipin Rawat said that with the ongoing unrest in Pakistan and tensions along the LAC, both, northern, as well as western fronts are a priority for India*

New Delhi: Chief of Defence Staff (CDS) General Bipin Rawat, on Tuesday, said that the Chinese deployment on the border with India has undergone a change after the recent incidents along the Line of Actual Control (LAC). Welcoming the ceasefire agreement between India and Pakistan, Rawat said that peace along the borders is good for both countries.

"They (China) realized that they need to be better trained and better prepared... Their soldiers mainly come from civilian street. They are enlisted for a short duration. They don't have much experience of fighting in these kinds of areas and operating in this kind of terrain," Rawat said in an interview with news agency ANI.

The CDS also underlined that amid unrest in Pakistan and the ongoing tensions with China, the northern, as well as western fronts, are a priority for the Indian defence establishment. Commenting on the ongoing ceasefire between Pakistan and India along the Line of Control (LoC), Rawat said that peace along the border is in the best interest of both countries.

"If you look at all these issues that are causing trouble to Pakistan, it would've dawned on their leadership that the best way forward is to seek peace with India. If they seek peace and this is long-lasting, it would be good for both the countries, more so for Pakistan," he said.

## **Rawat bats for dedicated theatre commands**

Rawat also batted for dedicated theatres for land, water and air defence, but added that the final structure will take shape only after an outline of the initial organisation has been created. "We will have a theatre looking after the Air Defence, we have always maintained that Air Defence is becoming more and more complex. There is a large use of airspace it is not just aircraft and helicopters that operate in the skies above," he said.

This is not the first time Rawat has stressed the importance of dedicated theatre commands. Speaking at Times Network's India Economic Conclave in May, Rawat had said that India needs an integrated approach to counter the emerging threats in the modern world.

<https://www.timesnownews.com/india/article/after-galwan-chinese-pla-realized-they-need-to-be-better-trained-and-better-prepared-cds-gen-bipin-rawat/774452>



CDS General Bipin Rawat | Photo Credit: ANI

## CDS chairs meet to resolve differences

*Sources said Indian Air Force raised issues regarding the allocation of its assets to various theatre commands, which are in the process of making*

*By Mayank Singh*

New Delhi: The meeting to iron out differences on raising of theatre commands and allocations of operational assets was held on Monday under the chairmanship of the Chief of Defence Staff, General Bipin Rawat. A senior Army officer said: “Other than CDS, the vice chiefs of the Army, Navy and Air Force, representatives of Department of Defence, Ministry of Home Affairs, National Security Council, Finance and HQ Integrated Defence Staff discussed views expressed by the Air Force regarding allocation of operational assets.” More meetings will be held.

Sources said Indian Air Force raised issues regarding the allocation of its assets to various theatre commands, which are in the process of making. The Air Force also have reservations regarding the powers of the Chief of the Air Staff.

The Indian Higher Defence Management is undergoing transformation to reform and redevelop aimed at meeting the contingencies of modern combat scenarios. As first step, the government created the Department of Military Affairs in the Ministry of Defence and appointed the CDS in 2019, who is also the secretary of DMA. CDS is mandated to integrate and synergise the armed forces and to be the advisor to the defence minister.



Chief of Defence Staff Gen Bipin Rawat (Photo | PTI)

The mandate also includes creation of theatre commands, which will be integrated containing the elements of the Army, Navy and Air Force, with the autonomy to defend and mount multi-dimensional attacks in the air, water and land, cyber and space within the assigned theatre.

The model being discussed to encompass the country’s maritime security will have a Maritime Theatre Command and an Air Defence Command. There will be Western Theatre Command, Northern Theatre Command and Eastern Theatre Command as the three land-based theatres. China reorganised its seven military regions into five theatre commands in 2016 and its Western Theatre Command is mandated for Indian Borders.

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<https://www.newindianexpress.com/nation/2021/jun/23/cds-chairs-meet-to-resolve-differences-2320169.html>

# Pune airport set to get IAF land for new cargo facility

By Joy Sengupta

Pune: The Indian Air Force (IAF) has agreed to provide land to the Pune airport authorities to facilitate the shifting of the cargo hold area to a larger space, three years after the proposal was first floated.

## CRUCIAL STEP FORWARD

**T**HE IAF WILL TRANSFER 2.5 ACRES OF ITS LAND TO THE AAI TO UPGRADE THE PUNE AIRPORT'S CARGO HANDLING CAPACITY

- In lieu, AAI will transfer a plot and a building in Chandigarh to IAF
- The new facility will help in transporting larger consignments of Covishield vaccine, manufactured by SII in Pune, directly to other cities
- Right now, larger consignments of vaccines are transported by road to Mumbai airport and flown from there
- Large consignments of the vaccine are also being transported by road to cities in other states
- The first consignment of the vaccine, comprising 2.6 lakh doses, left Pune airport on January 13
- So far, more than 10 crore vaccines have been shipped from the city airport
- On an average, 16-20 lakh doses are sent from the airport every alternate day



File photos

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The defence ministry has given us an oral confirmation; we are waiting for permission in writing. I will be in Delhi later this month for the Monsoon session in Parliament and will get the written confirmation by the end of the month. Once this happens, the cargo hold area can be shifted by early next month and become operational by mid-July

—Girish Bapat | PUNE MP

MONTHWISE CARGO MOVEMENT (IN MT)	➤ JANUARY	3,092	
	➤ FEBRUARY	2,587	
	➤ MARCH	2,261	
	➤ APRIL	2,221	

(SOURCE: PUNE AIRPORT; FIGURES FOR MAY & JUNE BEING COMPILED)

“The defence ministry has given us an oral confirmation; we are waiting for permission in writing,” Pune MP Girish Bapat, chairman of the Pune Airport Advisory Committee, told TOI. “I will be in Delhi later this month for the Monsoon session of the parliament and will get the written confirmation by the end of the month. Once this happens, the cargo hold area can be shifted by early next month,” Bapat added.



Pune airport has emerged as an important centre as stocks of Covishield vaccine, manufactured by Serum Institute of India (SII), are sent out from here. Larger consignments of the vaccine, however, are transported by road to the Mumbai airport and flown from there. The new space would help increase the volumes transported.

“We are looking at very large consignments of vaccine being transported from Pune in the near future,” a source at the Pune airport said.

Bapat further said the defence ministry made it clear that no permanent construction would be allowed on the plot. “We will come up with temporary sheds so that cargo is protected from weather conditions,” he said.

The shifting of the cargo facility had been pending for over three years. Last October, Pune airport authorities had said they were losing business worth Rs 2.5 crore per day. “If we get the plot opposite IAFs barrack store office yard, the handling capacity will increase to 500 tonnes each day. About 150 tonnes of cargo is handled by the existing facility,” Pune airport director Kuldeep Singh said.

However, a sense of urgency set in with the transport of vaccines starting in January, airport officials said.

“Also, the existing area where cargo is processed has to be closed to facilitate construction of the new terminal building. We were expecting things to move by January, but it didn’t work out,” the official said.

<https://timesofindia.indiatimes.com/city/pune/pune-airport-set-to-get-iaf-land-for-new-cargo-facility/articleshow/83760119.cms>



Wed, 23 June 2021

## Chinese S-400 systems across LAC, forces India to rethink air defence

*The PLA has upgraded Hotan air base in Xinjiang and Nyingchi air base in Tibet. Both bases are just across the LAC in Ladakh and Arunachal Pradesh respectively with the PLA deploying S-400 squadrons to protect them from Indian aerial threat*

*By Shishir Gupta*

New Delhi: Chief of Defence Staff (CDS) General Bipin Rawat on Tuesday said that air defence was becoming more and more complex in the larger context of the proposed setting up of an air defence theater command. He said there were large use of air space, not limited to just aircraft and helicopters.

The on-going stand-off with the People's Liberation Army (PLA) on China in East Ladakh with the presence of two S-400 squadrons of anti-aircraft systems at Hotan air base in Xinjiang and Nyingchi air base in Tibet, just across Ladakh and Arunachal Pradesh respectively, has forced the national security planners into a rethink about air defence and counter-measures. To add to this increasingly complex scenario are armed UAVs, swarm drones, missiles and rockets, which are now part of stand-alone weapon systems of the PLA.



The Russian S-400 system is one of the most advanced anti-aircraft systems in the world with proven track record in West Asia. China is now interested in S-500 system being developed in Russia.(Reuters File Photo)

While India is expected to get five squadrons of S-400 systems from Russia starting December 2021, the potency of the anti-aircraft system is such that it can target a fighter 400 kilometres away. This means that any aircraft that gathers height and stabilises for shooting down a target becomes a target of this weapon system itself. Perhaps, this is the reason why the Indian Air Force (IAF) is relying on Hammer air-to-ground missile on Rafale fighter as a future weapon as the missile does not need to be fired from a height; it just hugs the mountain features, zooms to a height when approaching the target and then destroys it top down at an ninety degree angle with the capacity of last minute target adjustments using three different guidance systems apart from GPS. The IAF has already tested the Hammer missile and is already in its inventory with the French even offering joint development and production of this long range potent weapon.

With the air defence system under challenge from a technologically advanced adversary in the north, the fundamental question that is being asked is should India invest in more aircraft and helicopters or stand-alone systems that will dictate future wars. While the IAF has been mandated to have 42 aircraft squadrons, each with 18 aircraft, the present strength is around 30 with the potential of six more squadrons to be added.

With Rafale capable of doing more than twice the number of sorties than a Russian MiG and the S-400 system a game changer in air defence, does IAF need 42 squadrons? Perhaps the answer lies in India raising more armed UAV, rocket and missile regiments that can suppress the troop and air defences of the adversary. It is for these very reasons that the Indian military is soon approaching the government for acquisition of armed Predator drones from the US on government to government basis. The US has also offered to train Indian personnel on cybersecurity as the defence systems are vulnerable to cyberattacks from adversaries acting on behalf on enemies of indian state.

It is quite evident that the war scenarios are changing with aircraft carriers, air bases and huge military cantonments all under threat from long distance missiles. The future lies in long range radars that can pick up enemy posture deep within its territory and a rapid response missile that obliterates the potential threat. India has to think China not Pakistan as the principal adversary has changed.

<https://www.hindustantimes.com/analysis/chinese-s-400-systems-across-lac-forces-india-to-rethink-air-defence-101624417959950.html>



## **Indian Navy to soon get MH-60 Romeo multi role helicopters**

*A team of about 20 officers and technicians of the Indian Navy is in the US, who are being trained to fly the new helicopter*

The Indian Navy is set to get an effective weapon next month. Three MH-60 Romeo helicopters will be handed over to the Navy in the US in July. A Navy team is in America and its initial training for Romeo helicopters has started. These three helicopters will be used for the training of this team.

The next batch of Romeo helicopters will be handed over to the Indian Navy in November. These will also be handed over to the Navy in America and they will also be used for training. The third consignment of helicopters will be delivered to the Navy in India in June-July next year. In total, the Navy will get all 24 helicopters by 2023.

A team of about 20 officers and technicians of the Indian Navy is in the US, who are being trained to fly the new helicopter, operate and maintain weapons and systems since early June. India had signed the deal of 24 Romeo helicopters in 2020 for about Rs 16,000 crores. The Indian Navy is eagerly waiting for the Romeo helicopter as it has to retire its obsolete Sea King helicopters.

Romeo helicopter is a multi-role helicopter. Through this, a ship can be attacked, a submarine can be searched and destroyed, relief and rescue work can be done or reconnaissance work can be done at sea. Through this, air-to-surface Hellfire missiles can also be fired.

Romeo helicopter will prove to be an effective weapon against submarines and it is also used in the US Navy as a submarine hunter. This helicopter can be used from all types of warships such as aircraft carrier, destroyer or frigate.

The new aircraft like the Romeo helicopter will be very helpful in building a common front against China in future. America, India, Japan and Australia are forming a common naval force against China's increasing interference in the sea. The presence of similar weapons in such a shared naval action makes coordination of action very easy and effective. Romeo helicopters are used by all three America, Australia and Japan. This means that a Romeo helicopter can take off from an Indian ship and take help of action from an American ship and after the action and land on an Australian ship.

<https://www.dnaindia.com/india/report-indian-navy-to-soon-get-mh-60-romeo-multi-role-helicopters-2896846>



File photo (Zee Media Bureau)

## Indian Navy, Air Force to participate in war games with US Navy's nuclear-powered aircraft carrier

*The Indian Navy and Indian Air force will hold joint exercises with the US Navy in Thiruvananthapuram on June 23 and June 24. The two-day exercise aims to strengthen the bilateral relationship between the two countries*

*By Abhishek Bhalla*

New Delhi: Indian Naval warships and Indian Air Force fighter jets are set to conduct joint drills with the US Navy's nuclear-powered aircraft carriers in separate exercises to be held on June 23 and June 24.

Indian Naval Ships, Kochi and Teg, along with P8I and MiG 29K aircraft, will participate in a Passage Exercise with the US Navy during its transit through Indian Ocean region.

“The Indian Naval warships along with aircraft from Indian Navy and Indian Air Force will be engaged in joint multi-domain operations with the Carrier Strike Group comprising Nimitz class aircraft carrier Ronald Reagan, Arleigh Burke class guided missile destroyer, USS Halsey and Ticonderoga class guided missile cruiser USS Shiloh,” the Indian Navy said in a statement.



(Image: Reuters/ for Representation)

The IAF will also participate in an exercise along with the nuclear-powered US aircraft carrier.

IAF fighter jets- Jaguar and Su-30 MKI- along with airborne early warning and control systems (AEW&C) and Air-to-Air Refueller aircraft will also be part of the joint exercise.

The US is expected to field F-18 fighters and E-2C Hawkeye AEW&C aircraft.

The exercise will be carried out south of Thiruvananthapuram, on the western seaboard.

### **Joint exercise aims to strengthen bilateral relationship**

The two-day exercise aims to strengthen the bilateral relationship and cooperation by demonstrating the two nation's ability to integrate and coordinate comprehensively in maritime operations.

High tempo operations during the exercise include advanced air defence exercises, cross deck helicopter operations, and anti-submarine exercises.

The participating forces will endeavour to hone their war-fighting skills and enhance their interoperability as an integrated force to promote peace, security and stability in the maritime domain.

“Indian Navy and US Navy regularly undertake a host of bilateral and multilateral exercises which underscore the shared values as partner navies, in ensuring commitment to an open, inclusive and a rule-based international order,” the Indian Navy said.

The IAF's exercise with the US CSG will focus on multiple areas including enhancing aspects of interoperability, nuances of international integrated maritime SAR operations, and exchange of best practices in the maritime airpower domain.

<https://www.indiatoday.in/india/story/indian-navy-air-force-participate-in-war-games-with-us-navy-1818159-2021-06-22>

# हिंद महासागर क्षेत्र में कल से शुरू होगा युद्ध अभ्यास, अमेरिकी नौसेना के साथ भारतीय वायु सेना दिखाएगी अपनी ताकत

भारतीय वायु सेना 23 और 24 जून को रोनाल्ड रीगन कैरियर स्ट्राइक ग्रुप (Ronald Reagan Carrier Strike Group) के साथ किए जाने वाले अभ्यास में अमेरिकी नौसेना के साथ भाग लेगी।

*Edited By: अलका कुमारी*

भारत बुधवार से हिंद महासागर क्षेत्र (IOR) में अमेरिका के साथ दो दिवसीय हवाई युद्ध अभ्यास (Two-day air combat exercise) शुरू करेगा, चीन पर मजबूती से नजर रखने के साथ इस क्षेत्र में तालमेल को और मजबूत करने के लिए एक और सैन्य जुड़ाव है। इस बात की जानकारी इंडियन एयरफोर्स (Indian Airforce) ने देते हुए कहा कि हिंद महासागर क्षेत्र में मित्र देशों के रक्षा बलों के साथ एक रणनीतिक आउटरीच अभ्यास (Strategic outreach exercise) के रूप में, भारतीय वायु सेना 23 और 24 जून को रोनाल्ड रीगन कैरियर स्ट्राइक ग्रुप (Ronald Reagan Carrier Strike Group) के साथ किए जाने वाले अभ्यास में अमेरिकी नौसेना के साथ भाग लेगी।

भारतीय वायु सेना ने बताया कि अभ्यास के AoR का दक्षिणी वायु कमान भारतीय वायुसेना के चार ऑपरेशनल कमांड के तहत ठिकानों से काम करेगी जिसमें जगुआर और एसयू -30 एमकेआई लड़ाकू (Jaguars & Su-30 MKI fighters), एडब्ल्यूएसीएस (AWACS), एईडब्ल्यूएंडसी और हवा से हवा में ईंधन भरने वाले विमान (AEW&C and Air to Air Refueller aircraft) शामिल होंगे।



तिरुवनंतपुरम के पश्चिमी समुद्र तट पर किया जाएगा अभ्यास

भारतीय वायुसेना के अनुसार अभ्यास के दौरान यूएस सीएसजी (US CSG) से एफ-18 लड़ाकू विमानों और ई-2सी हॉकआई एईडब्ल्यूएंडसी विमानों (E-2C Hawkeye AEW&C aircraft) को उतारने की उम्मीद है। मालूम हो कि ये अभ्यास दो दिनों में तिरुवनंतपुरम के दक्षिण में, पश्चिमी समुद्र तट पर किया जाएगा।

एक अधिकारी ने बताया कि आईएफ के पास आईओआर में समुद्री अभियानों का व्यापक अनुभव है। इसे अंतरराष्ट्रीय अभ्यासों में भागीदारी सहित देश के द्वीप क्षेत्रों से अभ्यासों के संचालन से सालों से समेकित किया गया है। उन्होंने कहा कि यह अभ्यास कई क्षेत्रों पर ध्यान केंद्रित करेगा, जिसमें समुद्री वायुशक्ति डोमेन में इंटरऑपरेबिलिटी और सर्वोत्तम प्रथाओं के आदान-प्रदान के पहलुओं को बढ़ाना शामिल है।

<https://www.tv9hindi.com/india/war-exercise-will-start-in-indian-ocean-from-tomorrow-indian-air-force-will-show-its-strength-with-us-navy-706879.html>

## ब्रिटेन ने नियुक्त किया भारतीय नौसेना के इंफार्मेशन फ्यूजन सेंटर में संपर्क अधिकारी

विमानवाहक पोत एचएमएस क्वीन एलिजाबेथ के नेतृत्व में ब्रिटेन के कैरियर स्ट्राइक ग्रुप की भारत की निर्धारित यात्रा से पहले इस सेंटर में अधिकारी की नियुक्त की गई है। उच्चायोग के अनुसार लेफ्टिनेंट कमांडर स्टीफन स्मिथ इस सेंटर में पूर्णकालिक काम करेंगे।

*By Manish Pandey*

नई दिल्ली: द्विपक्षीय रक्षा संबंधों को लेकर भारत और ब्रिटेन के बीच प्रगाढ़ता और बढ़ गई है। ब्रिटेन ने हिंद महासागर में चीन की सक्रियता को देखते हुए मंगलवार को भारतीय नौसेना के इंफार्मेशन फ्यूजन सेंटर (आइएफसी) में एक संपर्क अधिकारी की नियुक्ति कर दी। आइएफसी हिंद महासागर में समुद्री सुरक्षा सूचना का एक प्रमुख केंद्र है।

ब्रिटिश उच्चायोग ने कहा है कि ब्रिटेन के अंतरराष्ट्रीय संपर्क अधिकारी (आइएलओ) ने भारतीय नौसेना के इंफार्मेशन फ्यूजन सेंटर-हिंद महासागर क्षेत्र (आइएफसी-आइओआर) में अपना कार्यभार संभाल लिया है। भारतीय नौसेना ने 2018 में आइएफसी-आइओआर की स्थापना की थी, ताकि समान विचारधारा वाले देशों के साथ इस क्षेत्र में पोतों के आवागमन के साथ ही अन्य महत्वपूर्ण घटनाक्रम पर प्रभावी ढंग से नजर रखी जा सके।



विमानवाहक पोत एचएमएस क्वीन एलिजाबेथ के नेतृत्व में ब्रिटेन के कैरियर स्ट्राइक ग्रुप की भारत की निर्धारित यात्रा से पहले इस सेंटर में अधिकारी की नियुक्त की गई है। उच्चायोग के अनुसार, लेफ्टिनेंट कमांडर स्टीफन स्मिथ इस सेंटर में पूर्णकालिक काम करेंगे। वह भारतीय सशस्त्र बलों तथा साझेदार देशों के सहयोगी संपर्क अधिकारियों के साथ मिल कर काम करेंगे।

ब्रिटिश नौसेना के प्रमुख एडमिरल टोनी राडाकिन ने इसे भारत और ब्रिटेन द्वारा समुद्री क्षेत्र में जागरूकता की दिशा में एक महत्वपूर्ण कदम बताया। आस्ट्रेलिया ने फरवरी में इस सेंटर में अपना संपर्क अधिकारी नियुक्त किया था।

<https://www.jagran.com/news/national-britain-posts-liaison-officer-at-indian-navy-information-fusion-centre-21764402.html>



Press Information Bureau  
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Ministry of Science & Technology

Tue, 22 June 2021 5:32PM

## Scientists trace the mystery behind abundance of heavy metals in oldest metal-poor stars

The abundance of heavy metals in oldest metal-poor stars that are born from the ejecta of first stars has intrigued astronomers for long as already known processes of reaction of chemical elements by nuclear fusion within stars (nucleosynthesis) could not explain it. Scientists have now found a clue to this abundance in a nucleosynthesis process called the i-process.

Metal-poor stars that show enhancement of carbon, technically called Carbon Enhanced Metal Poor (CEMP) stars which were formed from the ejected material of the first stars that formed after the Big Bang, carry the chemical imprints of early Galactic chemical evolution. Probing into the formation of these metal-poor stars that exhibit enhancement in carbon as well as the specified heavy elements can help trace the origin and evolution of the elements in the Universe.

Scientists earlier found that heavier elements are produced mainly by two processes of nucleosynthesis— slow and rapid neutron-capture processes called s and r processes respectively. The s-process elements were thought to be produced in low and intermediate mass stars towards a final stage of stellar evolution. The proposed sites of the r- process are exotic events such as supernovae and neutron star mergers. The CEMP stars showing enhancements of s-process and r-process elements are known as CEMP-s and CEMP-r stars respectively. However, there is an another surprising subclass of CEMP stars, known as CEMP-r/s stars which exhibit enhancement of both s- and r-process elements the production process of which had remained a puzzle.

A group of scientists comprising of Prof. Aruna Goswami, from the Indian Institute of Astrophysics (IIA), an autonomous institute under the Department of Science & Technology, Govt. of India, her doctoral student Partha Pratim Goswami and Master's student Rajeev S. Rathour has achieved a significant advancement in unravelling this puzzle in a recent study published by in the journal, 'Astronomy & Astrophysics (A&A)'. In this paper, they have found that an intermediate process which they called i-process operating at neutron densities intermediate between those for s-process and r-process is responsible for the peculiar abundance pattern of CEMP-r/s stars. They have also put forward a new stellar classification criteria based on the abundances of barium, lanthanum and europium to distinguish between the CEMP-s and CEMP-r/s stars.

The team analyzed high quality, high resolution spectra of five CEMP stars acquired using 2-m Himalayan Chandra Telescope (HCT) at the Indian Astronomical Observatory, 1.52-m Telescope

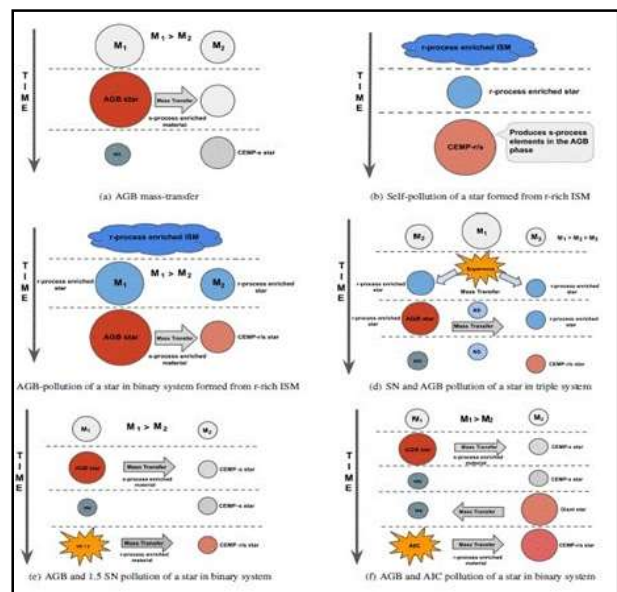


Fig. 1. Representation of different proposed formation scenarios of CEMP-s and CEMP-r/s stars.  $M_1$ ,  $M_2$ , and  $M_3$  represent the masses of the stars, where  $M_1 > M_2 > M_3$ . Here evolution of single, binary, and triple star systems with different conditions are shown.



at the European Southern Observatory at La Silla, Chile, and the 8.2-m SUBARU Telescope at the summit of Maunakea, Hawai'i, operated by the National Astronomical Observatory of Japan.

With the help of a large sample of CEMP-s and CEMP-r/s stars from the literature, the IIA team has critically analysed the different criteria used by various authors for CEMP-s and CEMP-r/s stars. They found that none of the existing classification criteria was efficient enough in distinguishing the CEMP-s and CEMP-r/s stars and hence put forward new criteria to fill this gap.

Partha Pratim Goswami said "This scheme of classification is based on the abundance ratios of three very crucial neutron-capture elements barium, lanthanum and europium and can be effectively used to distinguish the CEMP-s and CEMP-r/s stars".

<https://pib.gov.in/PressReleasePage.aspx?PRID=1729437>



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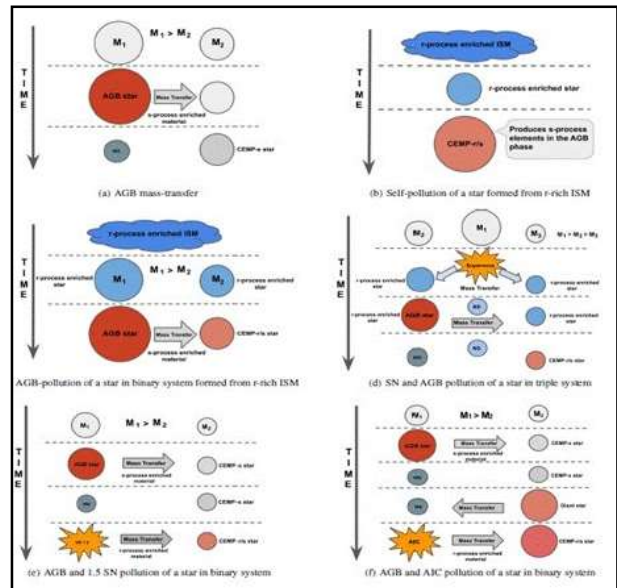
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## वैज्ञानिकों ने सबसे अधिक धातु-निर्धन (धातुओं की कमी वाले) पुराने तारों में भारी धातुओं की प्रचुरता के रहस्य का पता लगाया

धातुओं की अनुपलब्धता वाले ऐसे सबसे धातु-निर्धन पुराने जिन तारों का जन्म उनसे भी पहले के तारों के विस्फोट के उत्सर्जन की सामग्री से हुआ है, में भारी धातुओं की प्रचुरता ने लंबे समय तक खगोलविदों को परेशान ही किया है। क्योंकि तारों (न्यूक्लियोसिंथेसिस) के भीतर परमाणु संलयन द्वारा रासायनिक तत्वों की प्रतिक्रिया की पहले से ही ज्ञात प्रक्रियाएं इसकी व्याख्या नहीं कर सकती हैं। वैज्ञानिकों ने अब आई-प्रोसेस नामक न्यूक्लियोसिंथेसिस प्रक्रिया में इस बहुतायत का रहस्य ढूंढ लिया है।

कार्बन की वृद्धि दर्शाने वाले धातु-निर्धन तारे जो कार्बन की, तकनीकी रूप से कार्बन एन्हांसड मेटल पुअर (सीईएमपी) तारे कहलाते हैं, जो महा विस्फोट (बिग बैंग) के बाद बनने वाले पहले तारों की उत्सर्जित सामग्री से बने थे, में प्रारंभिक गैलेक्टिक रासायनिक विकास के रासायनिक लक्षण मिलते हैं। इन धातु-निर्धन सितारों के निर्माण की जांच करना जो कार्बन में वृद्धि के साथ-साथ निर्दिष्ट भारी तत्वों को प्रदर्शित करते हैं, से ब्रह्मांड में तत्वों की उत्पत्ति और विकास का पता लगाने में मदद मिल सकती है।

वैज्ञानिकों ने पहले पाया कि भारी तत्व मुख्य रूप से न्यूक्लियोसिंथेसिस की दो प्रक्रियाओं द्वारा निर्मित होते हैं- धीमी और तीव्र न्यूट्रॉन-कैप्चर प्रक्रियाएं जिन्हें क्रमशः एस और आर प्रक्रियाएं कहा जाता है। माना जाता है कि एस-प्रोसेस तत्व तारकीय विकास के अंतिम चरण की ओर कम और मध्यवर्ती द्रव्यमान सितारों में उत्पन्न होते हैं। आर-प्रक्रिया के प्रस्तावित



चित्र 1. सीईएमपी-एस और सीईएमपी-आर/एस तारों के विभिन्न प्रस्तावित निर्माण/गठन परिदृश्यों का प्रस्तुतीकरण। जहां एम 1 > एम 2 > एम 3 है वहां एम 1, एम 2, और एम 3 तारों के द्रव्यमान का प्रतिनिधित्व करते हैं यहां विभिन्न स्थितियों के साथ एकल (सिंगल), द्वितीय (बाइनरी) और तृतीयक (ट्रिपल) तारा प्रणाली (स्टार सिस्टम) के विकास को दिखाया गया है।

स्थल सुपरनोवा और न्यूट्रॉन स्टार विलय जैसी बाहरी घटनाएं हैं। सीईएमपी सितारे एस-प्रोसेस और आर-प्रोसेस तत्वों के संवर्द्धन दिखाते हुए सीईएमपी-एस और सीईएमपी-आर सितारों के रूप में जाने जाते हैं। हालांकि, सीईएमपी सितारों का एक और आश्चर्यजनक उपवर्ग है, जिसे सीईएमपी-आर/एस सितारों के रूप में जाना जाता है, जो एस- और आर-प्रक्रिया दोनों तत्वों की वृद्धि को प्रदर्शित करता है, जिसकी निर्माण/उत्पादन प्रक्रिया एक पहली बनी हुई थी।

विज्ञान और प्रौद्योगिकी विभाग, भारत सरकार के तहत एक स्वायत्त संस्थान, भारतीय खगोल भौतिकी संस्थान (आईआईए) से प्रो अरुणा गोस्वामी के भारतीय वैज्ञानिकों के एक समूह जिसमें उनके शोधार्थी छात्र पार्थ प्रतिम गोस्वामी और परा स्नातक के छात्र राजीव एस राठौर ने हाल ही में जर्नल 'एस्ट्रोनॉमी एंड एस्ट्रोफिजिक्स (ए एंड ए) में प्रकाशित एक अध्ययन में इस पहली को सुलझाने में एक महत्वपूर्ण प्रगति हासिल की है। इस पत्र में, उन्होंने पाया है कि एक मध्यवर्ती प्रक्रिया जिसे उन्होंने एस -प्रक्रिया और आर - प्रक्रिया के बीच न्यूट्रॉन घनत्व मध्यवर्ती पर संचालित आई -प्रक्रिया कहा है, सीईएमपी -आर/एस सितारों के अजीबोगरीब बहुतायत पैटर्न के लिए जिम्मेदार है। उन्होंने सीईएमपी-एस और सीईएमपी-आर/एस सितारों के बीच अंतर करने के लिए बेरियम, लैंथेनम और यूरोपियम की प्रचुरता के आधार पर एक नया तारकीय वर्गीकरण मानदंड भी सामने रखा है।

टीम ने भारतीय खगोलीय वेधशाला में 2-मी हिमालय चंद्र टेलीस्कोप (एचसीटी), चिली के ला सिला में यूरोपीय दक्षिणी वेधशाला में 1.52-मीटर टेलीस्कोप और 8.2-मी जापान के राष्ट्रीय खगोलीय वेधशाला द्वारा संचालित मौनाके, हवाई द्वीप के शिखर पर सुबारू टेलीस्कोप का उपयोग करके हासिल किए गए पांच सीईएमपी तारों के उच्च गुणवत्ता और उच्च रिज़ॉल्यूशन स्पेक्ट्रा का विश्लेषण किया।

इस विषय पर उपलब्ध साहित्य में वर्णित सीईएमपी-एस और सीईएमपी-आर/एस सितारों के एक बड़े नमूने की मदद से, आईआईए टीम ने सीईएमपी-एस और सीईएमपी-आर/एस सितारों के लिए विभिन्न शोधकर्ताओं द्वारा उपयोग किए जाने वाले विभिन्न मानदंडों का गंभीर विश्लेषण किया है। उन्होंने पाया कि मौजूदा वर्गीकरण मानदंडों में से कोई भी सीईएमपी-एस और सीईएमपी-आर/एस सितारों को अलग करने में पर्याप्त सक्षम/कुशल नहीं था और इसलिए इस अंतर को भरने के लिए नए मानदंड सामने रखे।

पार्थ प्रतिम गोस्वामी ने कहा, "वर्गीकरण की यह योजना तीन बहुत महत्वपूर्ण न्यूट्रॉन-कैप्चर तत्वों बेरियम, लैंथेनम और यूरोपियम के बहुतायत अनुपात पर आधारित है और सीईएमपी-एस और सीईएमपी-आर/एस सितारों को अलग करने के लिए इसका प्रभावी ढंग से इस्तेमाल किया जा सकता है"।

<https://pib.gov.in/PressReleasePage.aspx?PRID=1729583>

# Classic magic trick may enable quantum computing

*By Chris Patrick*

Quantum computing could solve problems that are difficult for traditional computer systems. It may seem like magic. One step toward achieving quantum computing even resembles a magician's trick: levitation. A new project at the U.S. Department of Energy's Thomas Jefferson National Accelerator Facility will attempt this trick by levitating a microscopic particle in a superconducting radiofrequency (SRF) cavity to observe quantum phenomena.

Typically at Jefferson Lab and other particle accelerator facilities, SRF cavities enable studies of the atom's nucleus. They do this by accelerating subatomic particles, such as electrons. This project will use the same type of cavity to instead levitate a microscopic particle of metal, between 1 and 100 micrometers in diameter, with the cavity's electric field.

"No one has ever intentionally suspended a particle in an electric field in a vacuum using SRF cavities," said Drew Weisenberger, a principal investigator on this project, as well as chief technology officer and head of the Radiation Detector and Imaging Group in the Experimental Nuclear Physics Division at Jefferson Lab.

If the project team is able to levitate a particle, they might be able to then impart a quantum state on it by cooling the trapped particle to its lowest possible energy level (because that's when quantum properties occur).

"Storing quantum information on a levitated nanoparticle is our ultimate goal, but for now, it is a proof of principle experiment," said Pashupati Dhakal, another principal investigator on the project and a staff scientist at Jefferson Lab in the Accelerator Operations, Research and Development Division. "We want to know if we can trap and levitate particles inside the cavity using the electric field."

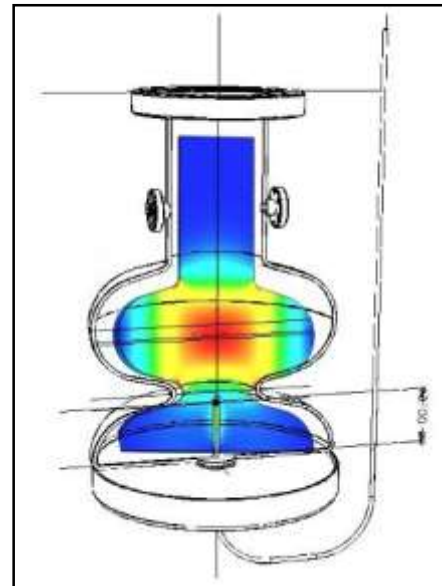
## Exploring the quantum with accelerator cavities

The idea for this project came from observations of accelerator experts. They think they have already unintentionally levitated unwanted and rare nanoparticles of metal, such as niobium and iron, inside SRF cavities during particle accelerator operations. They suspect that this unintentional levitation has impacted the performance of SRF cavity components.

Researchers are attempting to use a several-decades-old technique called "laser trapping," as a step toward reliably imparting a quantum state on a particle suspended in a laser beam. But, the Jefferson Lab project team thinks that SRF cavities may provide a better tool for those researchers.

"An electric field could go potentially beyond the capabilities of laser trapping," Weisenberger said. Intrinsic characteristics of SRF cavities will overcome some limits of laser trapping. A levitated particle in an SRF cavity that is under vacuum and chilled to super cold temperatures will only interact with the cavity's electric field and not lose information to the outside, which is important for maintaining a quantum state.

"Like storing information on a computer chip, the quantum state will stay and not dissipate," Weisenberger said. "And that could eventually lead to applications in quantum computing and quantum communications."



This is a line drawing of an accelerator cavity that will be used in a proof of principle project that aims to levitate a tiny metallic particle, allowing it to store quantum information. Credit: Thomas Jefferson National Accelerator Facility

This project, titled "SRF Levitation and Trapping of Nanoparticles Experiment," is funded by the Laboratory Directed Research & Development program, which provides resources for Jefferson Lab personnel to make rapid and significant contributions to critical science and technology problems relevant to the mission of Jefferson Lab and the DOE.

### **A multidisciplinary approach**

The project was conceived and launched by Rongli Geng in October 2021 before he transitioned to Oak Ridge National Laboratory. It has now shifted to a larger and more multi-disciplinary team led by Weisenberger and Dhakal, the current co-principal investigators.

Weisenberger's team researches detector technology for nuclear physics research, whereas Dhakal's work focuses on developing SRF cavities to accelerate electrons at high speeds. Weisenberger says that the multidisciplinary approach will bring together their expertise as they branch out together into the less familiar territory of this LDRD project.

Both principal investigators remark that the project is moving forward well, thanks to the diligence and expertise supplied by every member of the team. Team members include John Musson, Frank Marhauser, Haipeng Wang, Wenzhe Xi, Brian Kross and Jack McKisson.

"It's an interesting step outside of the usual things that we do," Weisenberger said. "The LDRD program lets loose Jefferson Lab scientists and engineers on a research question that isn't directly related to what we're actually hired to do, but is making use of all the expertise that we bring and it's a great resource to tap to try to stretch. That's what we're doing with this project, stretching."

### **Building and testing**

Before turning the project over to Weisenberger and Dhakal, Geng and his colleagues had determined the required parameters of the cavity and electric field with simulations and calculations.

"We have everything on paper but we have to make it into a reality," Dhakal said.

The team is currently setting up the experiment in real life.

"We have to see if what was simulated can actually happen," Weisenberger said.

First, they'll assemble a mock-up of the experiment at room temperature. Then, they'll circulate liquid helium around the outer surfaces of the cavity to cool it to superconducting temperatures approaching absolute zero.

Next comes the most difficult part. They must get a single microscopic particle in the correct region of the cavity while the cavity is locked up inside a containment vessel at superconducting temperatures, under vacuum, and with the electric field on.

"We've come up with a way to remotely launch a particle in the cavity under experimental conditions, we just have to test it now," Weisenberger said. "In the research and development world, you often can't do what you thought you could do. We try and test and run into problems, try to solve the problems, and keep going."

This is a year-long project with the possibility of another year of funding, depending on how things go. It is also an early stage, proof of principle project. If it is ultimately successful, there would still be a long road of R&D before the concepts could be applied toward building quantum computers. Such computers would require levitating and imparting quantum states on tens to hundreds to thousands of much smaller particles predictably and reliably.

Still, the researchers are looking forward to the discoveries they hope this study will enable regarding microscopic particle levitation and potential observation of a quantum state.

"I'm optimistic," Dhakal said. "Either way, we'll discover something. Failure is just as much a part of R&D as success. You learn from both. Basically, whether the particle levitates or not, or whether we can impart the quantum state to it or not, it's something that's never been done before. It's very challenging and exciting."

Provided by [Thomas Jefferson National Accelerator Facility](https://phys.org/news/2021-06-classic-magic-enable-quantum.html)  
<https://phys.org/news/2021-06-classic-magic-enable-quantum.html>



## A fiber optic monitoring system for 5G light-powered networks

The Universidad Carlos III de Madrid (UC3M), together with the Universidad Politécnica de Valencia (UPV), has patented a multicore fiber optic monitoring system for future use in 5G networks. This system will optimize energy consumption, preserving data transmission capacity.

The system, developed by the UC3M's Photonic Displays and Applications research group, has been able to light-power a system for controlling turning antennas on and off using a fiber optic infrastructure. "What we are going to achieve is a parallel system that will monitor the node's energy needs at all times.

In other words, if there is no user in the cell, which is the physical area covered by a particular antenna, we will turn it off so that it is not consuming energy," says Carmen Vázquez, professor at the Department of Electronic Technology.

In addition to this, by receiving a single optical signal, the system can also monitor temperature changes in the fiber core, energy distribution using optical means at different network points, and the state of the communication channel used within the fiber. "If lots of energy is sent, the temperature inside the fiber might increase and, therefore, could be damaged. This system helps us know how much energy we are sending and make sure that the infrastructure we are using to send that energy is in good condition and we are not damaging it," notes Vázquez.

The system can also be integrated into the communications channel itself, with minimal insertion losses and monitoring on a different control channel to the channel being used to send energy. Currently, there is no commercial system that integrates this type of technique, according to the research team.

This patent has been created in collaboration with the ITEAM-UPV's Photonics Research Labs, who manufactured the semi-reflective mirrors embedded in the optical fibers. "Fiber-manufactured devices monitor the power reaching the nodes in real time, while indicating the temperature, without affecting the power of the data being transmitted. This is the basis for the technique developed by the UC3M group," notes Salvador Sales, professor and researcher at the ITEAM-UPV. The results of research published recently in the *Journal of Lightwave Technology* scientific journal, which is co-edited by the Optical Society of America (OSA) and the IEEE Photonics Society, show some of the applications that the developed invention may have.

This patent has been developed within the framework of a wider line of research, which has obtained a set of results. BlueSPACE (5G PPP BlueSpace Project Grant 762055) is a three-year European research project, led by Eindhoven University of Technology, that aims to develop next-generation wireless technologies. BlueSpace aims to contribute technologies to increase the speed of the current network, while seeking to reduce energy consumption by using centralized technologies and multicore fibers. The UC3M's contributions to remote light-power have been evaluated in order to be part of the innovative technologies funded by the European Union and of Innovation Radar, an initiative from the European Commission.

**More information:** Fahad M.A. Al-Zubaidi et al, Optically Powered Radio-over-Fiber Systems in Support of 5G Cellular Networks and IoT, *Journal of Lightwave Technology* (2021). DOI: [10.1109/JLT.2021.3074193](https://doi.org/10.1109/JLT.2021.3074193)

<https://phys.org/news/2021-06-fiber-optic-5g-light-powered-networks.html>



Credit: CC0 Public Domain

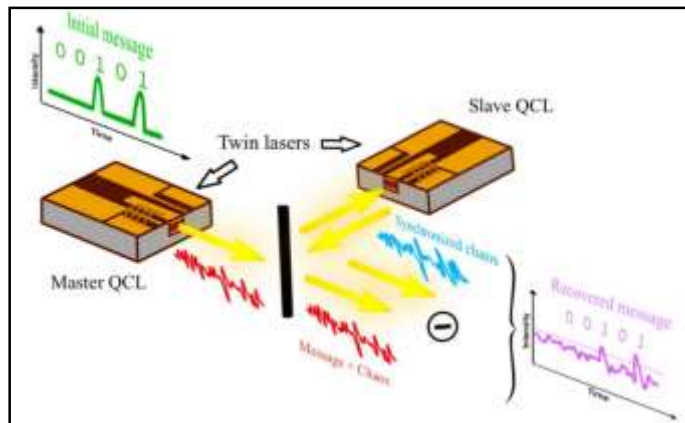


# Researchers propose the use of quantum cascade lasers to achieve private free-space communications

By Ingrid Fadelli

Free-space optical communication, the communication between two devices at a distance using light to carry information, is a highly promising system for achieving high-speed communication. This system of communication is known to be immune to electromagnetic interference (EMI), a disturbance generated by external sources that affects electrical circuits and can disrupt radio signals.

While some studies have highlighted the possible advantages of free-space optical communication, this system of communication has so far come with certain limitations. Most notably, it is known to offer limited security against eavesdroppers. Researchers at Télécom Paris (member of Institut Polytechnique de Paris), mirSense, Technische Universität Darmstadt and University of California Los Angeles (UCLA) have recently introduced a unique system for more secure free-space optical communication based on a technology known as quantum cascade laser, a specific type of semiconductor laser that typically emits mid-infrared light.



Experimental setup for private communication based on QCLs chaos synchronization. Credit: Spitz et al.

"The core idea behind our research is that private free-space communication with quantum key distribution (i.e., based on quantum physics properties) is promising, but it is probably years away, or even further," Olivier Spitz, one of the researchers who carried out the study, told TechXplore. "Currently, the main limitations of this technology are the requirements for cryogenic systems, very slow data rates and costly equipment."

In their paper, featured in *Nature Communications*, Spitz and his colleagues propose an alternative to previously proposed systems for achieving private free-space communication, which implement a cryptographic protocol based on the laws of quantum mechanics. The new system they devised is based on the use of two uni-directionally coupled quantum cascade lasers.

The researchers' approach combines what is known as chaos synchronization with the mid-infrared wavelength of quantum cascade laser technology. Chaos synchronization is a specific property that has been examined in the context of semiconductor lasers for decades.

"Chaos synchronization is the key to private communication, while mid-infrared wavelength means that the attenuation of the atmosphere is low in comparison with near-infrared wavelength, where most of the semiconductor lasers emit," Spitz explained. "We can thus envision transmission with a very long range and with immunity to the atmospheric conditions. Moreover, the mid-infrared wavelength implies stealth, as the background radiation is in the same wavelength domain."

The mid-infrared wavelength of the quantum cascade lasers makes it even harder for a potential eavesdropper to decipher information exchanged using the researchers' system. This means that the security of communications is increased further.

"I feel the most notable achievement is the successful chaos synchronization between two QCLs," Spitz said. "For a long time, the possibility to generate temporal chaos in this type of structure was controversial because they rely on a different technology, in comparison with most of the semiconductor lasers, which overall makes QCLs more stable, so not really prone to chaos. A few years ago, we experimentally demonstrated that QCLs can generate temporal chaos, and we now took this one step further by achieving private communication based on chaos synchronization."

So far, the researchers merely described a proof of concept of their proposed system, where the distance between the two quantum cascade lasers is merely of one meter. This is not a realistic configuration for free-space communication. However, they hope to improve their system, to make it more suitable for real-world implementations.

"We plan to increase this distance to hundreds of meters, then kilometers, in order to build an operational system," Spitz said. "Apart from quantum cascade lasers, there are other mid-infrared semiconductor lasers, such as interband cascade lasers (ICLs). We plan to repeat the same experiment with ICLs, to determine the best configuration for private communication at mid-infrared wavelength."

**More information:** Private communications with quantum cascade laser photonic chaos. *Nature Communications*(2021). DOI: [10.1038/s41467-021-23527-9](https://doi.org/10.1038/s41467-021-23527-9).

**Journal information:** [Nature Communications](https://www.nature.com/articles/s41467-021-23527-9)  
<https://phys.org/news/2021-06-quantum-cascade-lasers-private-free-space.html>

# One dose of Covid vaccine 82% effective in preventing death, 2 doses 95% effective: ICMR-NIE study

*Compared with unvaccinated individuals, the relative risk of Covid-19 deaths among those receiving one and two doses was 0.18 and 0.05 respectively, according to the study analysis*

*By Anuradha Mascarenhas*

A single dose of Covid 19 vaccine is effective in preventing deaths, according to a new analysis by the Indian Council of Medical Research-National Institute of Epidemiology (ICMR-NIE). Vaccine effectiveness in preventing Covid-19 deaths with one and two doses was 82 per cent and 95 per cent respectively.

The study 'Covid-19 vaccine effectiveness in preventing deaths among high-risk groups in Tamil Nadu, India', was published in the Indian Journal of Medical Research on June 21. The Tamil Nadu police department has been documenting vaccination of its workforce (as aggregate numbers with 0, 1 and 2 vaccine doses), and Covid-19 deaths during the second wave, along with details of the date of hospitalisation and vaccination.

The data was used to estimate the incidence of deaths due to Covid-19 among vaccinated and unvaccinated police personnel, Dr Manoj Murhekar, director of ICMR-NIE, told The Indian Express. There are 117,524 police personnel working with the Department of Police in Tamil Nadu. Between February 1 and May 14 this year, 32,792 police personnel received one dose of Covid vaccine, 67,673 received two doses while 17,059 did not receive any vaccine dose.

Thirty-one Covid-19 deaths were reported among these police personnel between April 13, 2021 and May 14, 2021. Of these 31 deceased, four had taken two doses of the vaccine, seven one dose and the remaining 20 were unvaccinated. The incidence of mortality among vaccinated and unvaccinated individuals was compared to calculate the relative risk of mortality associated with Covid-19 vaccination, researchers said.

The incidence of Covid-19 deaths among the vaccinated with zero, one and two doses was 1.17, 0.21 and 0.06 per 1,000 police personnel respectively. Compared to unvaccinated individuals, the relative risk of Covid-19 deaths among those receiving one and two doses was 0.18 and 0.05 respectively, according to the study analysis.

Dr Murhekar said the results of their analyses are consistent with published studies showing effectiveness against severe disease. Published results of phase-3 clinical trial of Oxford AstraZeneca vaccine indicated efficacy of 97.5 per cent against hospitalisation. Observational studies conducted in different countries also indicated high effectiveness of the vaccine in preventing severe outcomes, Murhekar said.

The analysis did not study the effectiveness separately for each of the Covid 19 vaccines, he added. Another study is underway across 11 sites to estimate vaccine effectiveness against severe disease. "It is necessary to increase coverage of Covid-19 vaccines, regardless of the type of vaccines, to reduce mortality in current as well as future waves of Covid-19 epidemic," Dr Balram Bhargava, director general, ICMR, told The Indian Express.

<https://indianexpress.com/article/india/pune/one-dose-of-covid-vaccine-82-effective-in-preventing-death-2-doses-95-effective-icmr-nie-study-7370899/>

