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समाचार पत्रों से चयित अंश Newspapers Clippings

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India's response to Covid-19 pandemic has been phenomenal, says DRDO Chief

Says active participation from educational institutes, industry public sector is required to assist the healthcare sector

Hyderabad: India comes out with suitable answers when pushed against the wall. The Covid-19 pandemic is yet another example to prove that country's response to challenges is phenomenal, said G Satheesh Reddy, Chairman, DRDO.

Addressing a conference held to mark the 12th Foundation Day of the Indian Institute of Technology, Hyderabad (IIT-H) on Sunday, he said that from a meagre capacity of 47,000 personal protection equipment (PPE) kits a year before the pandemic hit, the country quickly added capacity to make six lakh PPEs a day.

It is the same case with ventilators too, with indigenous designs coming in from public and private organisations, he said.

Listing out measures being initiated by the country in general and DRDO in particular, he said that the research organisation was opening up patents and offering financial help to start-ups to design and develop products locally.

D Nageshwar Reddy, Chairman of the Asian Institute of Gastroenterology (AIG), said that it's time for engineering institutes and hospitals to join hands to develop cost-effective products for the healthcare industry.

He stressed the need for the development of the ecosystem with active participation from educational institutes, industry and the public sector. He said artificial intelligence and bio-informatics were playing a big role in Covid-19 research.

<https://www.thehindubusinessline.com/news/indias-response-to-covid-19-pandemic-has-been-phenomenal-says-drdo-chief/article32480368.ece#>



Biomedical engineering saviour in fight against COVID-19, says DRDO Chief

Says India has the capacity to produce indigenous PPEs, ventilators and testing kits

Hyderabad: In the recent times, Biomedical engineering has emerged as a saviour in the fight against Covid-19. DRDO Chairman Dr G Satheesh Reddy stressed on this point during the online celebration of 12th Foundation Day of IIT-Hyderabad on Sunday, and said, “It takes time to adapt to technology bought from others. It’s much more convenient to develop our own technology. India has proven its capability as a technology leader, and now, we have the capacity to produce indigenous products such as PPEs, ventilators and testing kits.”

The incubation ecosystem under IIT Hyderabad’s Biomedical Engineering Department and Centre for Healthcare and Entrepreneurship (CfHE) is doing a commendable job by developing superior technology, state-of-the-art products and working towards Atam Nibhar Bharat,” he said.

Information Technology Department Principal Secretary Jayesh Ranjan, who was the guest of honour for the programme said, “Integration of science and non-science courses, practical learning against book-based learning, entrepreneurship, flexibility in the curriculum are important recommendations made under National Education Policy (NEP) which should be considered for implementation on priority basis.”

He added, “Though we got NEP-2020 after 34 years, the salient take-away points from it is really in line with making India Atam Nibhar (self reliant).”

Institutes such as IITs and IIMs have already crossed the half-way mark to observe NEP and are role models for other institutions, he said. Professor Murty, Director of IIT-H announced various Faculty Academic and Research Excellence Awards, Student Academic Excellence Awards, and Staff Excellence Awards. Due to pandemic IIT-H could not conduct the Convocation for graduating Batch of 2020 and announced the Convocation Day Awardees on Sunday.

<https://www.newindianexpress.com/states/tehrangana/2020/aug/31/biomedical-engg-saviour-in-fight-against-covid-19-says-drdo-chief-2190470.html>



THE TIMES OF INDIA

DRDO Chief bats for self-reliance in bio-med tech

Hyderabad: Brace up for technologies that can detect Covid-19 with a voice test. “Technologies that are being developed in India can come up with this. We are close to that,” DRDO Chairman G Satheesh Reddy said at IIT-Hyderabad’s 12th Foundation Day on Sunday.

During his virtual address, Satheesh Reddy, who is also Secretary of Department of Defence, R&D, said DRDO has come out with at least 75 Covid-related products. He said the Indian industry with indigenous technology has come out with products which were need of the hour. “We have seen technologies through which Covid-19 or pneumonia can be detected from an Xray making use of an app in just 30 seconds. This will get even more simple,” he said. Citing an

example, he said if one were to speak a few words like ‘Bharat Mata Ki Jai’, that should suffice to detect if a person has Covid-19 or not.

“The need of the hour is to come up with bio medical technologies. This is an area the country is lacking in. We have the capabilities and we should concentrate on developing our own technologies. In the Covid context, while in a year 47,000 PPE kits were being produced, because of the emergency situation, six lakh PPE kits are being produced every day and the infrastructure we have can deliver another 10 lakh PPE kits a day,” he said.

“The concept of Atma Nirbhar is to develop our own technologies. It does not mean indigenous production, which has been happening for a long time,” the top scientist added.

IIT Hyderabad director Prof BS Murthy said IIT-Hyderabad had come up with 50 research projects to fight Covid. “We share a special bond with Japan and I am pleased to share that we have approval for Phase-2 of friendship which will support academic, research and infrastructure development at IIT-H,” he added.

Asian Institute of Gastroenterology chairman Dr D Nageshwara Rao, IT Secretary Jayesh Ranjan and IIT-H chairman Dr BRV Mohan Reddy also spoke.

<https://timesofindia.indiatimes.com/city/hyderabad/drdo-chief-bats-for-self-reliance-in-bio-med-tech/articleshow/77840640.cms>



Sat, 29 Aug 2020

Will request MPs to get tested for coronavirus 72 hours before start of Monsoon Session: Speaker

New Delhi: MPs will be requested to get themselves tested for COVID-19 at least 72 hours before the start of the Monsoon Session of Parliament, Lok Sabha Speaker Om Birla said on Friday. The Monsoon Session is likely to start from September 14 and conclude on October 1.

Besides MPs, all those who are expected to enter the Parliament premises, including officials from ministries, representatives from the media and staff of Lok Sabha and Rajya Sabha secretariats, will get tested for the coronavirus before the start of the session, Birla said.

The Lok Sabha speaker on Friday held a long meeting with officials from the health ministry, ICMR, AIIMS, DRDO and Delhi government to finalise the arrangements for the session in view of the COVID-19 pandemic.

Birla said arrangements have also been made for zero-touch security checks during the session. If required random tests for COVID-19 can be conducted during the session, he said.

If required random tests for COVID-19 can be conducted during the session, he said.

The Lok Sabha speaker is the custodian of the Parliament complex and the Lok Sabha Secretariat is the nodal authority for the building. Therefore, the responsibility for making arrangements in the Parliament building lies with the Lok Sabha Secretariat.

Sources said the Monsoon Session is likely to be held in two shifts - morning and evening. Due to the pandemic, this will be in a way a first-of-its-kind session with various modifications.

<https://www.onmanorama.com/news/nation/2020/08/28/will-request-mps-to-get-tested-for-coronavirus-72-hours-before-s.html>



India chapter of Society of Flight Test Engineers takes wing giving boost to military aviation

By Anantha Krishnan M

Bangalore: Military aviation is set to get a boost when the India chapter of Society of Flight Test Engineers (SFTE) will formally take-off with an inaugural virtual session scheduled on Saturday (August 29).

What makes this event unique will be the participation of some of the best brains behind flight testing, a highly skilled art only a chosen few can execute.

Saturday's video-conferencing meet set to be attended by around 80 delegates across India will see Wg Cdr P K Raveendran (Retd), a top-notch flight test engineer (FTE) delivering the keynote address from Bengaluru, a test-bed for Indian's military flying. Former Aeronautical Development Agency (ADA) Director Air Marshal Philip Rajkumar (Retd) will be the chief guest during the virtual event.



Wg Cdr Raveendran (Retd) served the Indian Air Force (IAF) from 1970-1995 and played various roles from a maintenance engineer, flight engineer, FTE, Project Director (Airborne Warning and Control System project) and Chief Engineer Instructor (IAF Test Pilots School).

From 1995 to 2015 he was part of the development flight testing of Light Combat Aircraft Tejas at National Flight Test Centre (NFTC) which is part of ADA.

According to SFTE officials, Wing Cdr Raveendran (Retd), a recipient of Shaurya Chakra and close to 1500 hours of flying experience to his kitty, will touch upon the role of FTE in development flight testing.



SFTE Chapter

SFTE is headquartered in Lancaster (CA, USA) is an international fraternity of engineers, whose principal professional interest is flight testing of aerospace vehicles.

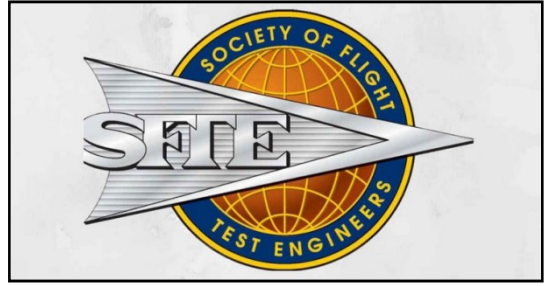
The India chapter of the SFTE was established in December 2019. It is the second chapter of SFTE, after the European chapter, located outside the US.

"The objective of SFTE is the advancement of flight test engineering throughout the aerospace industry by providing technical and fraternal communication among individuals, in the allied engineering fields of test operations, analysis, instrumentation and data systems," says an official, quoting from an SFTE official document.



The India chapter saw the elected Executive Committee taking charge this June headed by Wg Cdr K Kalyanaraman (Retd), an experienced FTE with stints with the Indian Air Force and the civilian aerospace industry, for over 40 years.

The office-bearers of India Chapter are; President: Wg Cdr K Kalyanaraman (Retd), Vice-President: Gp Capt M Prabhu (Retd), Group Director-Flight Test, NFTC, ADA, Secretary: Wg Cdr Maheswar Patel (Retd), Senior Flight Test Engineer, HAL Flight Operations, Treasurer: Wg Cdr CM Santosh (Retd), Senior Partner, AEMC India LLP and Secretary-Technical Committee: Wg Cdr M Dilli Babu, Flight Test Engineer, ASTE, IAF.



A seven-member Technical Committee supports the Executive Committee for spearheading the technical reach through research, symposiums, academic lectures and other activities. The India Chapter will be headquartered at Bangalore.

“The India Chapter is getting organized to derive maximum benefits for Indian aerospace establishments and flight test professionals. Increased exposure and participation by our professionals on international platforms will help us get closer to great lessons learnt and best practices,” says an official.

He said the emphasis is being placed on forthcoming challenges for the Indian aerospace flight research, test and development ventures.

“Efforts will also be on active participation in international forums focusing on flight testing, such as SFTE and SETP (Society of Experimental Test Pilots) annual symposia,” he adds.

Road Ahead

The roadmap for the chapter includes the conduct of international symposia and technical workshops specific to the Indian context, at regular intervals.

“This will help draw from the rich repository of technical papers accumulated by the SFTE, and build on it with specific applicability keeping in mind Indian needs,” says an official.

Documenting lessons learnt from the conduct of flight test programs, research on needs of the industry and future trends, standardization of practices especially handling sensitive information are other goals of SFTE.

“Our endeavour for academic outreach would be through voluntary guest lectures as well as short capsule courses specially curated by experienced members of SFTE to satisfy specific training needs of aspiring flight test professionals,” says the officials.

FTE for You

An FTE is an engineer first and forms the primary operational-engineering interface between the vehicle and its design/manufacture team.

An FTE plans the flight test program, breaks it down into phases, test profiles and test points, specifies test techniques, and directs test flights.

Monitors test flight in real-time, either from aboard the vehicle or from the ground console, with a sharp focus on safety and test technique.

Evaluates the success of an executed test point in real-time and advises Test Pilots on its validity or need to repeat.

Evaluates the success of each test flight and interfaces with the design and maintenance engineers during all subsequent developmental work.

When asked about the roles of FTEs and Test Pilots (TPs) compared to 30-40 years back, an official said that the fundamentals have not changed, but greater roles have evolved.

“This is to achieve better mutual understanding between TPs, FTEs and all the other professionals that form the developmental team. There is greater rigour now among the test crew to focus on risk evaluation, safety, engineering precision, development of test techniques to satisfy a continually expanding developmental horizon, cost factors, and time schedules,” says the official.

As the professional body of FTEs takes wing in Bengaluru, the city is already abuzz with a series of flight test activities.

Tejas Final Operational Clearance variants, Light Combat Helicopter prototypes, Light Utility Helicopter prototypes, the HTT-40 Basic Trainer Aircraft variants, SARAS and many other IAF assets on upgradation mode fly in and fly out of Bengaluru every day clearing various test parameters.

In addition, there are several systems and sub-systems being developed by Defence Research and Development Organisation labs and industries being tested on a regular basis on various platforms.

The FTEs are flocking under one roof at the right time when India is slowly and surely showing signs of adding more impetus to self-reliance in aerospace and defence activities.

<https://www.onmanorama.com/news/nation/2020/08/28/society-of-flight-test-engineers-indian-chapter.html>

hindustantimes

Mon, 31 Aug 2020

Uttarakhand CM meets DRDO Chairman, discusses plans of promoting defence sector in region

The DRDO has one of its defence laboratories named Instruments Research & Development Establishment (IRDE) in Dehradun

Dehradun: Uttarakhand chief minister Trivendra Singh Rawat on Sunday met Defence Research and Development Organisation (DRDO) Chairman Dr G Satheesh Reddy at his residence in Dehradun.

During the meeting, the two discussed the possibilities of promoting the defence industry in the state after the recent restriction by the Centre on the import of 101 defence items.

They also discussed about taking the help of DRDO in developing state-based industries and in agricultural activities in the border villages of the state.

During the meeting, CM Rawat discussed the matter regarding providing training and internship to the state's engineering students in DRDO establishments in Dehradun and other places. to which Dr Reddy gave his approval.

The DRDO has one of its defence laboratories named Instruments Research & Development Establishment (IRDE) in Dehradun.

In July this year, Indo-Tibetan Border Police (ITBP) chief S Deswal met CM Rawat and raised issues related to roads, mobile and power connectivity, land for housing ITBP personnel and the promotion of tourism in remote and border areas of the state.

<https://www.hindustantimes.com/india-news/uttarakhand-cm-meets-drdo-chairman-discusses-plans-of-promoting-defence-sector-in-region/story-LWkpyfplPs4GVqaF5Pip4H.html>



Uttarakhand Chief Minister Trivendra Singh Rawat and DRDO Chairman Dr G Satheesh Reddy at his residence in Dehradun. (ANI PHOTO.)

उत्तराखंड के मुख्यमंत्री से मिले डीआरडीओ के चेयरमैन, रक्षा से जुड़े उद्योगों को बढ़ावा देने पर की चर्चा

डीआरडीओ के चेयरमैन सतीश रेड्डी ने आत्मनिर्भर भारत के सपने को साकार करने पर जोर दिया।

कहा कि आत्मनिर्भर भारत के सपने को साकार करने के लिए सभी को एकजुट होकर साथ देना चाहिए।

देहरादून: उत्तराखंड में डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गेनाइजेशन (डीआरडीओ) के चार प्रतिष्ठान हैं। इस लिहाज से राज्य डीआरडीओ के लिए बेहद मायने रखता है। यह बात दून पहुंचे डीआरडीओ के चेयरमैन डॉ. जी. सतीश रेड्डी ने यंत्र अनुसंधान एवं विकास संस्थान (आइआरडीई) में आयोजित इंडस्ट्री मीट में कही। उन्होंने कहा कि उत्तराखंड के उद्योगों को आगे आकर रक्षा क्षेत्र का सहयोगी बनना चाहिए।

रविवार को आइआरडीई गेस्ट हाउस के सभागार में राज्य के विभिन्न क्षेत्रों से आए उद्यमियों को संबोधित करते हुए डॉ. जी. सतीश रेड्डी ने कहा कि रक्षा सेक्टर में भारत को आत्मनिर्भर बनाने के लिए 101 उत्पादों को आयात की श्रेणी से बाहर कर दिया गया है। अब ये उत्पाद देश के उद्योगों के सहयोग से मेक इन इंडिया के तहत डीआरडीओ में बनाए जाएंगे। इसके अलावा रक्षा क्षेत्र के 108 उत्पाद ऐसे हैं, जिन्हें सिर्फ उद्योग बनाएंगे। उन्होंने बताया कि अब तक डीआरडीओ एक हजार रक्षा तकनीक उद्योगों को सौंप चुका है। उन्होंने उद्योगों को डीआरडीओ के साथ जोड़ने के लिए चलाई जा रही योजनाओं की भी जानकारी दी। इस अवसर पर मुख्यमंत्री के औद्योगिक सलाहकार केएस पंवार, ओएलएफ के महाप्रबंधक एसएस यादव, आइआरडीई के निदेशक डॉ. बीके दास, वरिष्ठ विज्ञानी बेंजामिन लॉयनल, संयुक्त निदेशक डॉ. केसी बहुगुणा, पंकज गुप्ता, अनिल गोयल आदि उपस्थित रहे।

**देश की सेना के लिए उत्पाद बनाने पर नहीं देनी होगी
रॉयल्टी**

डीआरडीओ के चेयरमैन डॉ. जी. सतीश रेड्डी ने बताया कि रक्षा क्षेत्र से जुड़े उद्योग डीआरडीओ के 1700 पेटेंट पर काम कर सकते हैं। देश की सेना के लिए उत्पाद बनाने पर उनसे किसी तरह की रॉयल्टी नहीं ली जाएगी। अगर वह अपने उत्पादों को निर्यात करते हैं तो कारोबार के हिसाब से दो फीसद रॉयल्टी अदा करनी होगी। इसके अलावा टेक्नोलॉजी डेवलपमेंट फंडिंग के जरिये इच्छुक उद्योग डीआरडीओ से 90 फीसद तक बजट भी प्राप्त कर सकते हैं।

<https://www.jagran.com/uttarakhand/dehradun-city-doon-arrives-at-drdo-chairman-emphasizes-dream-of-self-reliant-india-20687839.html>



डीआरडीओ के चेयरमैन सतीश रेड्डी ने आत्मनिर्भर भारत के सपने को साकार करने पर जोर दिया। कहा कि आत्मनिर्भर भारत के सपने को साकार करने के लिए सभी को एकजुट होकर साथ देना चाहिए।



दुश्मन के ऊपर मंडराने को तैयार है अत्याधुनिक ड्रोन रुस्तम-2

देहरादून, सुमन सेमवाल। डीआरडीओ (डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गनाइजेशन) का अत्याधुनिक ड्रोन 'रुस्तम-2' दुश्मन के ऊपर मंडराने को तैयार है। डीआरडीओ की देहरादून स्थित डिफेंस इलेक्ट्रॉनिक्स एप्लिकेशन लैबोरेटरी (डील) ने रुस्तम की संचार प्रणाली पर काम पूरा कर दिया है। साथ ही, इसे बंगलुरु स्थित एयरोनॉटिकल डेवलपमेंट एस्टेब्लिशमेंट (एडीई) के सुपुर्द कर दिया गया है। अब ड्रोन रुस्तम-2 को तैयार करने का काम यही प्रतिष्ठान कर रहा है।

रुस्तम-2 की संचार प्रणाली (एयर डेटा टर्मिनल) को रविवार को आइआरडीई में आयोजित इंडस्ट्री मीट में रखा गया। इस अवसर पर डील के वरिष्ठ विज्ञानी दीपक अवस्थी ने बताया कि ड्रोन के फील्ड ट्रायल पूरे कर लिए गए हैं। सभी मानकों पर इसका प्रदर्शन संतोषजनक पाया गया है। उम्मीद है, सालभर के भीतर इसे सेना में शामिल कर दिया जाएगा।

250 किमी का सफर तय कर सकता है रुस्तम

डील के वरिष्ठ विज्ञानी दीपक अवस्थी ने बताया कि रुस्तम सेना के कमांड एंड कंट्रोल सेंटर (ग्राउंड डेटा टर्मिनल माध्यम) से करीब 250 किलोमीटर का सफर तय कर सकता है। हवा में यह 40 किलोमीटर की ऊंचाई से दुश्मन की हर हरकत को रिकॉर्ड कर सकता है। इसमें एंटी जाम/क्लियर कमांड अप-लिंक सिस्टम है, जिससे इसे ट्रैक भी नहीं किया जा सकता। इसमें इतना बैकअप है कि यह हवा में 24 घंटे तक छिपा रह सकता है।

सेटेलाइट से जोड़ने पर 1000 किलोमीटर है रेंज

रुस्तम की संचार प्रणाली को यदि सेटेलाइट (सेटकॉम डेटा टर्मिनल माध्यम) से जोड़ा जाए तो इसकी रेंज एक हजार किलोमीटर तक बढ़ाई जा सकती है। लिहाजा, रुस्तम इतनी दूरी से चित्र, ऑडियो व वीडियो भेजने में सक्षम है। यदि इसमें हथियार फिट किया जाए तो यह टारगेट को भी शूट कर सकता है।

<https://www.jagran.com/uttarakhand/dehradun-city-drdo-prepared-modern-drone-rustom2-20690427.html>

Business Standard

Mon, 31 Aug 2020

India to start bidding process for 6 submarines worth Rs 55,000 cr by Oct

The submarines will be built in India under the much-talked-about strategic partnership model that allows domestic companies to join hands with leading foreign defence majors

New Delhi: India is all set to launch the bidding process by next month for a Rs 55,000-crore mega project to build six conventional submarines for the Indian Navy to narrow the gap with China's growing naval prowess, government sources said on Sunday.

The submarines will be built in India under the much-talked-about strategic partnership model that allows domestic companies to join hands with leading foreign defence majors to produce high-end military platforms in the country and reduce import dependence.

The sources said the groundwork like specifications of the submarines and other critical requirements for issuance of the RFP (request for proposal) for the mega project, named as P-75 I, has been completed by separate teams of the defence ministry and the Indian Navy.

The RFP will be issued by October, they added.

The defence ministry has already shortlisted two Indian shipyards and five foreign defence majors for the project, being billed as one of biggest "Make in India" ventures.

The shortlisted Indian entities were L&T group and state-owned Mazagaon Docks Ltd (MDL) while the select foreign entities included ThyssenKrupp Marine Systems (Germany), Navantia (Spain) and Naval Group (France).

Initially, the defence ministry will issue RFPs to MDL and L&T and the two firms will have to submit their detailed bid after receiving the document. Subsequently, the L&T and MDL will have to select a foreign partner out of the five shortlisted entities, the sources said.

The Indian Navy plans to acquire 24 new submarines, including six nuclear attack submarines, to bolster its underwater fighting capability. It currently has 15 conventional submarines and two nuclear submarines.

The Navy has been focusing on significantly bolstering its overall capabilities in view of China's growing efforts to increase its military presence in the Indian Ocean Region.

The Indian Ocean, considered the backyard of the Indian Navy, is critical to the country's strategic interests.

According to global naval analysts, Chinese navy currently has over 50 submarines and about 350 ships. The total number of ships and submarines is projected to go past 500 in next 8-10 years.

The Indian Navy is also in the process of procuring 57 carrier-borne fighter jets, 111 Naval Utility Helicopters (NUH) and 123 multi-role helicopters under the strategic partnership model.



The defence ministry has already shortlisted two Indian shipyards and five foreign defence majors for the project, being billed as one of biggest

The policy envisages the establishment of long-term strategic partnerships with Indian defence majors through a transparent and competitive process wherein they would tie up with global original equipment manufacturers (OEMs) to seek technology transfers.

Initially, the strategic partners will be selected in four segments - fighter aircraft, helicopters, submarines and armoured fighting vehicles/main battle tanks. It is expected to be expanded to other segments.

In the last few months, the government has unveiled a series of reform measures and initiatives to make India a hub of defence manufacturing.

On August 9, Defence Minister Rajnath Singh announced that India will stop the import of 101 weapons and military platforms like transport aircraft, light combat helicopters, conventional submarines, cruise missiles and sonar systems by 2024.

In May, the government announced increasing the FDI limit from 49 per cent to 74 per cent under the automatic route in the defence sector.

India is one the largest importers of arms globally. According to estimates, the Indian armed forces are projected to spend around USD 130 billion in capital procurement in the next five years.

The government now wants to reduce dependence on imported military platforms and has decided to support the domestic defence manufacturing.

The defence ministry has set a goal of a turnover of USD 25 billion (Rs 1.75 lakh crore) in defence manufacturing in the next five years that included an export target of USD 5 billion (Rs 35,000 crore) worth of military hardware.

https://www.business-standard.com/article/current-affairs/india-to-start-bidding-for-6-submarines-worth-rs-55-000-cr-by-october-120083000584_1.html



Mon, 31 Aug 2020

Indian Navy sent warship to South China Sea after Ladakh clash: Report

The deployment of the Indian Navy warship in the South China Sea had a desired effect on the Chinese Navy and security establishment as they complained to the Indian side during diplomatic level talks, sources told news agency ANI

New Delhi: Acting swiftly after the Galwan valley clash on June 15 in Eastern Ladakh, the Indian Navy sailed out its frontline warship for deployment in the South China Sea much to the displeasure of the Chinese who raised objections over the move during the talks between the two sides.

The Chinese have been objecting to the presence of Indian Navy ships in the region where it has significantly expanded its presence since 2009 through artificial islands and military presence.

"Soon after the Galwan clash broke out in which 20 of our soldiers were killed, the Indian Navy deployed one of its frontline warship to the South China Sea where the People's Liberation Army's Navy objects to the presence of any other force claiming the majority of the waters as part of its territory," government sources ANI.



The Indian warship was constantly updated about other military vessels there, ANI said. (File)

The immediate deployment of the Indian Navy warship in the South China Sea had a desired effect on the Chinese Navy and security establishment as they complained to the Indian side about

the Indian warship's presence there during the diplomatic level talks with the Indian side, the sources said.

During the deployment in the South China Sea, where the American Navy had also deployed its destroyers and frigates, the Indian warship was continuously maintaining contact with their American counterparts over secure communication systems, the sources informed.

As part of the routine drills, the Indian warship was being constantly updated about the status of the movement of military vessels of other countries there, they said adding that the entire mission was carried out in a very hush-hush manner to avoid any public glare on Navy's activities.

Around the same time, the Indian Navy had deployed its frontline vessels along the Malacca Straits near the Andaman and Nicobar Islands and the route from where the Chinese Navy enters the Indian Ocean Region to keep a check on any activity of the Chinese Navy. A number of Chinese vessels also pass through the Malacca Straits while returning with oil or taking merchant shipments towards other continents.

The sources said the Indian Navy is fully capable of checking any misadventure by the adversaries on either the eastern or the western front and the mission-based deployments have helped it to control the emerging situations effectively in and around the Indian Ocean Region.

The Navy also has plans to urgently acquire and deploy autonomous underwater vessels and other unmanned systems and sensors to keep a close eye on the movement of PLAN from Malacca Straits towards the Indian Ocean Region, the sources said.

The Navy is also taking care of the Chinese vessels present around the Djibouti area and has deployed its assets in the vicinity for protecting national interest.

(Except for the headline, this story has not been edited by NDTV staff and is published from a syndicated feed.)

<https://www.ndtv.com/india-news/indian-navy-sent-warship-to-south-china-sea-after-ladakh-clash-report-2287648>



Mon, 31 Aug 2020

गलवन में झड़प के बाद भारत ने दक्षिण चीन सागर में तैनात किए युद्धपोत

नियमित ड्रिल के तहत भारतीय युद्धपोत को लगातार अन्य देशों की गतिविधियों के बारे में जानकारी दी जाती है।

नई दिल्ली: चीन की चालबाजियों का हर जगह मुंहतोड़ जवाब देने के लिए भारत पूरी तरह तैयार है। गलवन घाटी में चीनी करतूत के कारण हुई 'हसक झड़प' के तुरंत बाद भारतीय नौसेना ने हिंद महासागर के साथ-साथ दक्षिण चीन सागर में भी अपना युद्धपोत तैनात कर दिया था। सूत्रों के हवाले से रविवार को पहली बार यह जानकारी सामने आई। यह कदम इसलिए अहम है क्योंकि दक्षिण चीन सागर पर चीन अपना दावा जताता रहा है। सूत्रों का कहना है कि दक्षिण चीन सागर में युद्धपोत तैनात करने का असर चीनी नौसेना पर तुरंत दिखाई दिया। उसने भारत के साथ राजनयिक स्तर की वार्ता में इस मुद्दे को उठाया था।



नियमित ड्रिल के तहत भारतीय युद्धपोत को लगातार अन्य देशों की गतिविधियों के बारे में जानकारी दी जाती रही। पूरा मिशन

नियमित ड्रिल के तहत भारतीय युद्धपोत को लगातार अन्य देशों की गतिविधियों के बारे में जानकारी दी जाती है।

गोपनीय तरीके से किया गया ताकि नौसेना की गतिविधियों पर लोगों की नजर न पड़े। इस तैनाती के दौरान भारत ने

अमेरिका को भी भरोसे में ले लिया था। अमेरिकी नौसेना से लगातार संपर्क रखा गया। अमेरिका ने भी इस क्षेत्र में अपने पोत तैनात किए हुए हैं। नौसेना ने अंडमान एवं निकोबार द्वीपसमूह के नजदीक मलक्का स्ट्रेट और "हद महासागर में चीनी नौसेना के प्रवेश मार्ग के नजदीक भी अपने जहाज तैनात किए हैं। इससे चीनी नौसेना की हर गतिविधि पर नजर रखने में मदद मिली है। मलक्का स्ट्रेट से भी चीन के कई जहाज तेल एवं अन्य वस्तुओं के साथ अन्य महाद्वीपों से आते हैं।

पूर्व से पश्चिम तक पूरी तैयारी

सूत्रों ने बताया कि भारतीय नौसेना पूर्वी और पश्चिमी दोनों ही मोर्चे पर किसी भी चुनौती से निपटने के लिए तैयार है। मिशन के आधार पर तैनाती से हिंद महासागर में और उसके आसपास स्थिति को प्रभावी तरीके से नियंत्रित करने में मदद मिली है। मलक्का स्ट्रेट से हिंद महासागर की ओर चीनी नौसेना की गतिविधियों पर नजर रखने के लिए भारतीय नौसेना विभिन्न स्वचालित पनडुब्बियां, मानवरहित सिस्टम एवं सेंसर भी लगाने की योजना बना रही है।

हर तरफ नजर

- अंडमान के नजदीक भी नौसेना ने की है जहाजों की तैनाती
- चीन की हर आवाजाही और गतिविधि की हो रही निगरानी
- स्वचालित पनडुब्बियां एवं सेंसर लगाने की भी योजना

क्यों अहम है यह कदम?

दक्षिण चीन सागर में अपना युद्धपोत भेजकर भारत ने चीन के समक्ष यह जता दिया कि वह उसके सबसे अहम सामरिक मोर्चे पर भी चुनौती देने के लिए तैयार है।

लड़ाकू विमान कर रहे अभ्यास

नौसेना ने एक वायुसेना बेस पर अपने मिग-29के लड़ाकू विमान भी तैनात किए हैं। ये विमान जमीनी एवं पहाड़ी क्षेत्रों में किसी भी टकराव का सामना करने के लिए अभ्यास कर रहे हैं।

तेज होगी खरीद प्रक्रिया

पोत से उड़ान भरने में सक्षम 10 मानवरहित विमानों की खरीद प्रक्रिया तेज की जा रही है। यह सौदा 1,245 करोड़ रुपये में होने का अनुमान है।

दक्षिण चीन सागर मसला

दक्षिण चीन सागर पर चीन अपना एकछत्र राज चाहता है। यहां वह कुछ कृत्रिम द्वीपों का निर्माण भी कर रहा है। इस क्षेत्र के विभिन्न हिस्सों पर मलेशिया, इंडोनेशिया, फिलीपींस, वियतनाम और ब्रुनेई जैसे देश भी अधिकार जताते हैं।

सामरिक और आर्थिक महत्व

दक्षिण चीन सागर का जबरदस्त आर्थिक और भू रणनीतिक महत्व है। दुनिया के एक तिहाई समुद्री जहाज यहीं से गुजरते हैं, जिनके जरिये हर साल तीन लाख करोड़ डॉलर का व्यापार होता है। इस क्षेत्र में समुद्र तल के नीचे तेल और प्राकृतिक गैस का प्रचुर भंडार है।

<https://www.jagran.com/news/national-post-galwan-clash-indian-navy-quietly-deployed-warship-in-south-china-sea-20687412.html>

भारतीय सेना की यूनिफॉर्म में बदलाव के लिए हो रहा है सैंपल रिव्यू

*भारतीय सेना की यूनिफॉर्म में कुछ बदलाव होने वाले हैं। इस बाबत प्रक्रिया तेजी से चल रही है।
आर्मी सूत्रों के मुताबिक, बदलती ऑपरेशनल जरूरतों को ध्यान में रखते हुए यूनिफॉर्म में
पूनम पाण्डे*

हाइलाइट्स:

- कॉम्बेट यूनिफॉर्म सहित सभी तरह की यूनिफॉर्म में होगा बदलाव
- ज्यादा आरामदायक और स्मार्ट बनाने के लिए इंडस्ट्री से लिए सैंपलों की हो रही हैं जांच
- ब्रिगेडियर और इससे ऊपर के रैंक के अधिकारियों के लिए बेल्ट और कैप में बदलाव

नई दिल्ली: भारतीय सेना की यूनिफॉर्म में बदलाव की प्रक्रिया कुछ और आगे बढ़ी है। सेना की कॉम्बेट यूनिफॉर्म सहित सभी तरह की यूनिफॉर्म को ज्यादा आरामदायक ज्यादा स्मार्ट बनाने के लिए इंडस्ट्री से सैंपल मंगाए गए थे और चुनिंदा सैंपलों का रिव्यू इन दिनों चल रहा है। पिछले साल यूनिफॉर्म में बदलाव की प्रक्रिया शुरू की गई थी, उस वक्त आर्मी चीफ जनरल बिपिन रावत थे। बदलाव की कवायद के पीछे यूनिफॉर्म को ज्यादा आरामदायक बनाने के साथ ही मकसद अधिकारियों की यूनिफॉर्म में एकरूपता लाना भी है ताकि ब्रिगेडियर और इससे ऊपर के अधिकारियों में यूनिफॉर्म से यह पता ना चले कि वह किस आर्म्स के और रेजिमेंट के हैं।

इस वजह से हो रहा है बदलाव

आर्मी सूत्रों के मुताबिक बदलती ऑपरेशनल जरूरतों को ध्यान में रखते हुए यूनिफॉर्म में बदलाव की प्रक्रिया शुरू की गई। इसका मकसद यूनिफॉर्म को आरामदायक बनाना भी है क्योंकि वक्त के साथ ही टेक्सटाइल टेक्नॉलजी भी काफी बदल गई है और अब कई तरह के विकल्प मौजूद हैं। सूत्रों के मुताबिक आर्मी की कॉम्बेट ड्रेस, समर और विंटर की रेगुलर ड्रेस, सेरिमोनियल ड्रेस, मेस की ड्रेस सभी में बदलाव की कोशिश की जा रही है। जिन सैंपलों का रिव्यू चल रहा है उनमें फैब्रिक के साथ ही डिजाइन का कंफर्ट लेवल भी देखा जा रहा है। अलग अलग सैंपल में तुलना कर जो सबसे बेहतर लगेगा उसे फिर आगे बढ़ाया जाएगा।



जानें क्या-क्या बदलाव हो सकता है?

सूत्रों के मुताबिक यूनिफॉर्म के फैब्रिक में बदलाव होगा। साथ ही डिजाइन और पैटर्न में भी कुछ बदलाव हो सकता है। कॉम्बेट ड्रेस में बेल्ट हो या नहीं यह भी देखा जा रहा है। इसके अलावा ब्रिगेडियर और इससे ऊपर के रैंक के अधिकारियों की यूनिफॉर्म से यह पता ना चले कि वह किस आर्म्स और रेजिमेंट के हैं, इसकी कोशिश भी की जा रही है। शुरुआत मेस ड्रेस से हो सकती है। आर्मी की किसी भी फॉर्मल या इनफॉर्मल सोशल गैदरिंग में आर्मी ऑफिसर्स मेस ड्रेस पहनते हैं।

क्या बोले सीनियर अधिकारी

आर्मी के एक सीनियर अधिकारी के मुताबिक, अभी मेस ड्रेस में पहने जाने वाले कमरबंद से इसका पता चल जाता है कि कौन अधिकारी इंफ्रंट्री के हैं, कौन आर्टिलरी के, कौन एयर डिफेंस के या किसी और आर्म्स के। इसी तरह अधिकारी किस रेजिमेंट के हैं यह भी मेस ड्रेस के कमरबंद में लगे क्रेस्ट और टोपी से पता चल जाता है। बदलाव के बाद कर्नल रैंक तक के अधिकारियों का तो रेजिमेंटल कमरबंद होगा, लेकिन ब्रिगेडियर और इससे ऊपर रैंक के अधिकारियों

का एक जैसा ही काले रंग का कमरबंद हो सकता है जिसमें इंडियन आर्मी का क्रेस्ट लगा हो सकता है ना कि उनकी अपनी रेजिमेंट का। टोपी में भी इसी तरह के बदलाव हो सकते हैं। मेस ड्रेस में आर्मी अधिकारी के रैंक का पता लगेगा, उसमें रिबन लगे होंगे और नेम प्लेट होगी। लेकिन किस रेजिमेंट के और किस सर्विस के हैं यह पता नहीं लगेगा। इस बदलाव के पीछे मकसद यह भी है कि इंडियन आर्मी एक लगे न कि रेजिमेंट में बटी हुई दिखे।

<https://navbharattimes.indiatimes.com/india/a-sample-review-is-being-done-to-change-the-uniform-of-the-indian-army/articleshow/77833869.cms>



Mon, 31 Aug 2020

Indian Army begins the review process of samples of the new uniforms

The Indian Army uses nine types of uniforms which can be divided into winter and summer uniforms

By Mayank Singh

Delhi: Moving one step ahead with its plan to change the uniforms, the Army has started the process of sample testing keeping an eye on comfort and operational efficiency.

Confirming the process an Army officer said, “The samples review of the uniforms is going on keeping all the parameters and standards in mind.”

The idea was set in motion last year with a plan to utilise the advent of new technologies in textile and fabric which will not only make uniforms look good and be comfortable in varying temperatures and humid locations but would also be able to bear the needs of soldiers serving in rough conditions.

The changes planned encompass the whole array of uniforms assigned to the soldiers as per various occasions.

“We have got the samples of all uniforms including Summer Dress, winter dress (Angola and Jersey), Mess Dress, Blue Patrol, White Patrol and Combat Uniform”

The Indian Army uses nine types of uniforms which can be divided into winter and summer uniforms. These are also divided into the combat uniform, peacetime uniform, mess uniform and ceremonial uniform. The ceremonial uniform also has three types.

Another idea, as told by the officers, is to bring uniformity in appearance of officers of the various regiments, corps and service at the rank of brigadier and above.

“The uniformity is being planned into the belt, shoulder badges, lanyard and Caps”, said the officer.

The officers can be distinguished observing their uniforms so the plan is to introduce a uniform look with a plan to keep a single colour waist band/belt and army crest. Something similar is thought of the lanyard and the rank badges.

This means that all Brigadier-rank officers and above will sport the same beret, cap, shoulder badge, lanyard and belt.

But, the former officers believe that it is an idea which needs due diligence as uniform of army is like the second skin and have been a major reason for people getting attracted and joining the services.

<https://www.newindianexpress.com/nation/2020/aug/30/indian-army-begins-the-review-process-of-samples-of-the-new-uniforms-2190381.html>

First image of China's new carrier-based AEW plane

The Chinese Navy is building a fleet of aircraft carriers that will be the second largest in the world. However, they currently lack airborne early warning (AEW) aircraft, which is considered a vital component of a balanced air wing. This is set to change with the introduction of the Xian KJ-600 carrier-borne AEW aircraft. It looks remarkably like the U.S. Navy's E-2C Hawkeye.



The prototype KJ-600 has been spotted in satellite imagery of the Xi'an Aircraft Industrial Corporation's airfield at Xian-Yanliang in central China. This is where many prototype planes are first seen. Chris Biggers, an imagery intelligence expert, identified the new aircraft in commercial satellite imagery provided by Planet Labs.

Although these are the first images of the prototype, evidence of the KJ-600 program has been seen before. A mock-up of the plane was spotted in August 2018 on a full scale concrete aircraft carrier built hundreds of miles inland at Wuhan. This training facility is used by the Chinese Navy to test deck layouts.

And Xian Industrial Corporation has previously flown the experimental JZY-01 AEW aircraft. This was based on the Xian Y-7 transport aircraft. The twin-prop Y-7 is itself based on the famous Antonov An-24 aircraft. It was widely seen as a demonstrator for the KJ-600, which is similar to the JZY-01 but more compact and generally more refined.

The layout is remarkably similar to the U.S. Navy's E-2 Hawkeye family of aircraft. They are both twin turboprop aircraft with high-mounted long straight wings that can fold for carrier storage. They have a relatively small fuselage just large enough for a crew of 4 to 6. The radar is carried in a large rotodome atop the fuselage. Lastly the tail is split into several smaller vertical stabilizers, like bombers of World War II.

The layout of the two planes is virtually identical, to the point that aircraft recognition may prove a challenge in the future. The Hawkeye is a well proven design that first flew 60 years ago, and is still in service aboard U.S. and French aircraft carriers.

This may be a case of form following function, although there can be little doubt that the Hawkeye was the inspiration for the KJ-600. The same can be said of the Russian Yakovlev Yak-44, which had once been destined to operate from the U.S.S.R's carriers.

It is not yet known whether the KJ-600's radar actually rotates. An alternative is to have three or more fixed arrays which together cover in all directions. China uses both approaches in different aircraft. But the satellite images shows just one darker leading edge segment. This suggests a single radar array, which logically has to rotate to cover 360 degrees. The exact radar configuration may be confirmed in future images.

There is also a question mark as to whether the KJ-600 will be able to operate from China's first two carriers, because they use a ski-jump instead of a catapult, so aircraft have to launch using only their own power.

But China's first indigenous carrier-borne AEW aircraft is real. It is seen as a major development and capability leap for the Chinese Navy. Together with new carriers, and new operating facilities, it is part of a sea change in China's naval power.

<https://www.defencenews.in/article/First-Image-Of-China%E2%80%99s-New-Carrier-Based-AEW-Plane-942123>



Mon, 31 Aug 2020

Israel refuses to sell AWACS to China but pushes for a billion-dollar deal with India?

With an aggressive China overlooking on the Line of Actual Control (LAC) in eastern Ladakh, India's latest acquisition are two more Phalcon's Airborne Warning and Control System (AWACS) aircraft from Israel. On one hand, while the push from Israel expediated the long-stalled deal to sell AWACS to India, it had earlier refused to sell the system to China.

According to Harinder Mishra, a journalist living in Jerusalem, the long-stalled deal is a part of a \$2 billion worth purchase agreement between India and Israel which includes plans to jointly manufacture arms supplies and defense equipment.

While talking to *BBC*, he said that Israel has been pushing New Delhi to finalize the deal because the delay leads to a further increase in its price.



Mishra asserted that it is irrational to associate the purchase with India-China tension. He added that three AWACS given to India is monitoring the airspace of Pakistan and they can see the land of Islamabad and Rawalpindi at this time. "Under these circumstances, it can be estimated where the next two AWACs will be deployed."

Israel-China AWACS Deal

Two decades ago, the US pressured Israel to scrap the AWACS deal because the spy plane would give China a strategic advantage over America's AWACS aircraft in any conflict over Taiwan. This acted as a major dent in Israel-China ties.

China's interest in Israel is strategic given the fact that the Jewish state is one of the world's foremost commercial, food, and security technology powerhouses and one of the few foreign countries to command significant grassroots support in the US.

However, Israel cannot afford to weaken its ties with the US as it is a powerful support to the annexation of the West Bank.

India's Need for AWACS

According to S. Alex Philip, India first felt the need for AWACS during the air battle with Pakistan on February 27, 2019.

Following the Balakot last year when Indian warplanes crossed the border and dropped bombs in the vicinity of the town of Balakot in Pakistan, the very next day, Pakistan tried to target military installations but was repulsed. Pakistan, which operates about 10 AWACS, took advantage of the system and succeeded in downing the Indian MiG-21 Bison in aerial combat besides capturing Indian Air Force (IAF) pilot Abhinandan Varthaman, who was handed over to India on March 1, 2019.

Now the deal has finally received a green signal from India's Cabinet Committee on Security (CCS). The new PHALCON radar is going to be mounted on the Russian A-50 aircraft but will take two to three years for the delivery of the complete system.

Also termed as the Airborne Early-Warning and Control (AEW&C) aircraft, the AWACS are key systems of modern warfare as they can detect and track incoming fighters, cruise missiles, and drones much before ground-based radars, direct friendly fighters during air combat with enemy jets.

They also keep tabs on enemy troop build-ups and movement of warships. India's current possession of AWACS consists of three Phalcon AWACS, with a 400-km range and 360-degree coverage, and two indigenous "Netra" AEW&C aircraft, with indigenous 240-degree coverage radars with a 250-km range fitted on smaller Brazilian Embraer-145 jets.

Chinese AWACS

The Chinese AWACS include four Kong Jing-2000 (KJ-2000), four KJ-200, and two KJ-500 in the People's Liberation Army Air Force (PLAAF) as per Military Balance 2017. The PLA Navy has its own small fleet of AEW aircraft on the Y-8/Y-9 platform.

According to Grp Captain RS Chhatwal, Chinese AWACS use Active Electronically Scanned Array (AESA) technology which is more advanced than the technology used in AWACS built by the US and Russia.

"Against the PLAAF's ten AWACS/AEW aircraft, the IAF has three AWACS with two more in the pipeline. In addition, the IAF has inducted one Embraer EMB-145 AEW&C in February 2017 and has two more in the pipeline. The rectangular dual side airborne radar on this aircraft has been developed indigenously by Defence Research and Development Organisation (DRDO) and is similar to China's KJ-200," he wrote comparing the Chinese and Indian AWACS capabilities.

However, the acquisition of the AWACS is well-timed with the Indian Army preparing for a long haul at the LAC with China in Eastern Ladakh. The two nations have been at loggerheads ever since the deadly Galwan valley clash which resulted in the killing of 20 Indian soldiers and unconfirmed numbers on the Chinese side.

He further added that both the Chinese and Indian AWACS will suffer performance limitations in the mountains since undulations in the terrain will create detection problems for aircraft masked behind the hills.

"The laws of physics are universally applicable and requirement of Line of Sight condition has to be met for radar pick up." Another limitation in the mountainous terrain at the LAC will be due to terrain masking, AWACS may not be able to pick up any attackers heading towards it and the attackers can easily launch sneak attacks taking advantage of hill shadows in the area.

<https://eurasianimes.com/israels-push-to-sell-awacs-to-india-refuses-china/>

India, France in discussion for Mission Alpha-like equipment for Gaganyaan astronauts

A senior official of the National Centre for Space Studies (CNES), the space agency of France, said work on the equipment for Mission Alpha is on

New Delhi: Space agencies of India and France are in an advanced stage of discussions for providing necessary equipment to ‘Gaganyaan’ astronauts, similar to the one to be used by French astronaut Thomas Pesquet for Mission Alpha next year, officials said.

A senior official of the National Centre for Space Studies (CNES), the space agency of France, said work on the equipment for Mission Alpha is on.

French astronaut Thomas Pesquet, as part of the European Space Agency (ESA), will be returning to the International Space Station (ISS) while flying on Crew Dragon spacecraft early next year.

“Discussions are in the final stage. An announcement is likely to be made soon. Work on the instrumentation for Mission Alpha is on,” the CNES official said without elaborating on the details of the equipment.

India and France share a robust collaboration in the area of space. Space agencies of the two countries are also collaborating on nearly Rs 10,000 crore Gaganyaan mission that aims to send three Indians to space by 2022.

Last year, flight surgeon Brigitte Godard, then with the CNES, was in India to train physicians and engineers.

France has a well-established mechanism for space medicine. It also has the MEDES (French Institute of Space Medicine and Physiology) space clinic, a subsidiary of CNES, where space surgeons undergo training.

“The Indian space surgeons will also go to France next year once the coronavirus situation eases,” an ISRO official said. He also did not comment on specific collaboration for supply of the equipment to Gaganyaan astronauts.

Four short-listed Indian Air Force pilots and prospective astronauts for the Gaganyaan mission are currently undergoing training in Russia.

Meanwhile, ‘Alpha’ was chosen as the name for Pesquet’s new mission after a competition organised by the European Space Agency in partnership with CNES that attracted more than 27,000 entries.

The name came up 47 times in the entries received.

Pesquet, who spent six months on ISS between November 2016 and June 2017, is currently training with Crew Dragon spacecraft and station simulators for Mission Alpha.

To give Europe’s scientists an opportunity to gain access to ISS and to coordinate activities on the station, the ESA has established User Support and Operations Centres (USOC), of which the CADMOS centre for the development of microgravity applications and space operations at CNES’s Toulouse Space Centre is one, according to an official statement on Mission Alpha.



Space agencies of the two countries are also collaborating on nearly Rs 10,000 crore Gaganyaan mission that aims to send three Indians to space by 2022.

For human space flights, CADMOS is the point of contact between the ground segments in Europe, the United States and Russia and the science teams supporting astronauts, as they perform experiments in real time, it added.

<https://indianexpress.com/article/technology/science/gaganyaan-india-france-equipment-astronaut-6576318/>



Mon, 31 Aug 2020

Bacteria could have traveled from Mars to Earth, changing what we know about how life formed, study says

Deinococcus bacteria were able to survive for three years outside the ISS on aluminum plates

By Chris Ciaccia

A newly published study notes that a type of bacteria was able to survive in space outside the International Space Station, opening up the possibility that life could have traveled from Mars.

The research, published in *Frontiers in Microbiology*, notes that dried *Deinococcus* bacteria were able to survive for three years outside the ISS on aluminum plates outside the floating space laboratory. It gives credence to the idea of "panspermia," the hypothesis that life on Earth originated from microorganisms in outer space.

"The origin of life on Earth is the biggest mystery of human beings," study co-author Dr. Akihiko Yamagishi said in a statement. "Scientists can have totally different points of view on the matter. Some think that life is very rare and happened only once in the Universe, while others think that life can happen on every suitable planet. If panspermia is possible, life must exist much more often than we previously thought."

The *Deinococcus* bacteria on the surface of the plates died, but "it created a protective layer for the bacteria beneath ensuring the survival of the colony," the statement added.

The experts found that *Deinococcus*, sometimes known as "Conan the Bacterium" for its ability to survive harsh conditions, was floating 7.5 miles above the Earth.

Using the survival data for the bacteria between one and three years, Yamagishi and the other researchers found that those 0.5 millimeters and thicker would live for anywhere between 15 and 45 years on the ISS. Those that were thicker than 1 millimeter (a size where *Deinococcus* is known to form large colonies) could live for up to 8 years in space conditions, the researchers suggested.

"The results suggest that radioresistant *Deinococcus* could survive during the travel from Earth to Mars and vice versa, which is several months or years in the shortest orbit," Yamagishi added.

The findings were part of the Japanese Tanpopo mission, of which Yamagishi is the principal investigator.

Several previous studies have discussed the idea of panspermia, including one earlier this year, that suggested comets may have delivered the "essential element" for life on Earth.



The bacterial exposure experiment took place from 2015 to 2018 using the Exposed Facility located on the exterior of Kibo, the Japanese Experimental Module of the International Space Station. (Credit: JAXA/NASA)

In 2019, NASA found sugar molecules on two different meteorites, adding credence to the idea that asteroids play a crucial role in supporting life.

NASA's Perseverance rover, which recently left Earth on its way to the Red Planet, will perform a number of tasks while there, including looking for fossilized evidence of extraterrestrial life.

NASA's long-term goal is to send a manned mission to Mars in the 2030s.

<https://www.foxnews.com/science/bacteria-could-traveled-from-mars-earth-study>



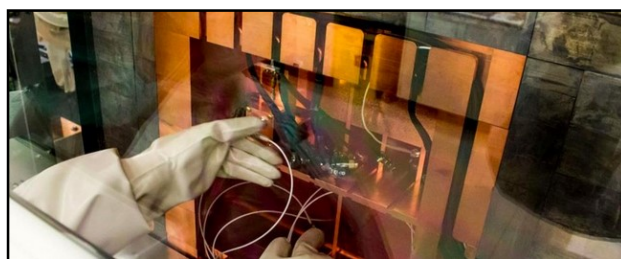
Mon, 31 Aug 2020

We just found another obstacle for quantum computers to overcome - And it's everywhere

By David Nield

Keeping qubits stable – those quantum equivalents of classic computing bits – will be key to realising the potential of quantum computing. Now scientists have found a new obstacle to this stability: natural radiation.

Natural or background radiation comes from all sorts of sources, both natural and artificial. Cosmic rays contribute to natural radiation, for example, and so do concrete buildings. It's around us all the time, and so this poses something of a problem for future quantum computers.



An ultra-low radiation detection facility at PNNL. (Andrea Starr, PNNL)

Through a series of experiments that altered the level of natural radiation around qubits, physicists have been able to establish that this background buzz does indeed nudge qubits off balance in a way that stops them from functioning properly.

"Our study is the first to show clearly that low-level ionising radiation in the environment degrades the performance of superconducting qubits," says physicist John Orrell, from the Pacific Northwest National Laboratory (PNNL).

"These findings suggest that radiation shielding will be necessary to attain long-sought performance in quantum computers of this design."

Natural radiation is by no means the most significant or the only threat to qubit stability, which is technically known as coherence – everything from temperature fluctuations to electromagnetic fields can break the qubit 'spell'.

But the scientists say if we're to reach a future where quantum computers are taking care of our most advanced computing needs, then this interference from natural radiation is going to have to be dealt with.

It was after experiencing problems with superconducting qubit decoherence that the team behind the new study decided to investigate the possible problem with natural radiation. They found it breaks up a key quantum binding called a Cooper pair of electrons.

"The radiation breaks apart matched pairs of electrons that typically carry electric current without resistance in a superconductor," says physicist Brent VanDevender, from PNNL. "The resistance of those unpaired electrons destroys the delicately prepared state of a qubit."

Classical computers can be disrupted by the same issues that affect qubits, but quantum states are much more delicate and sensitive. One of the reasons that we don't have genuine full-scale quantum computers today is that no one can keep qubits stable for more than a few milliseconds at a time.

If we can improve on that, the benefits in terms of computing power could be huge: whereas classical computing bits can only be set as 1 or 0, qubits can be set as 1, 0 – or both at the same time (known as superposition).

Scientists have been able to get it happening, but only for a very short space of time and in a very tightly controlled environment. The good news is that researchers like those at PNNL are committed to the challenge of figuring out how to make quantum computers a reality – and now we know a bit more about what we're up against.

"Practical quantum computing with these devices will not be possible unless we address the radiation issue," says VanDevender. "Without mitigation, radiation will limit the coherence time of superconducting qubits to a few milliseconds, which is insufficient for practical quantum computing."

The research has been published in [Nature](#).

<https://www.sciencealert.com/natural-radiation-could-be-a-problem-for-our-quantum-computing-future>



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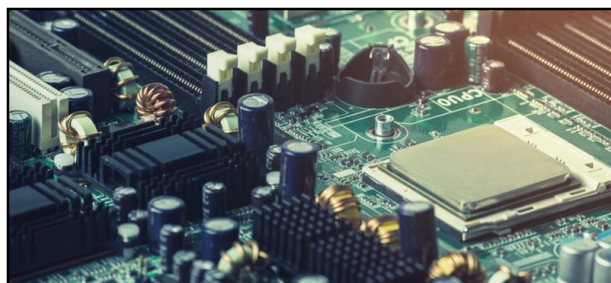
Can AI solve the rare earths problem? Chinese and U.S. researchers think so

A research effort funded by China and the U.S. could speed up the discovery of new materials to use in electronics

By Patrick Tucker

A joint U.S.-Chinese research team has shown that artificial intelligence can help find potent new combinations of materials to replace rare earth metals that are key to military technology.

Rare earths materials drive today's high-tech batteries and computer chips. It's possible to engineer new compounds from common materials that can perform as well or better than the rare-earth-based ones found in common devices. But figuring out the right combinations of elements to design, say, new high-ion conductors or other materials useful for electronics, is an enormous task. If you're looking to make a compound material with just four of the first 103 elements on the periodic table, you're looking at ten-to-the-12th-power combinations. A tiny fraction of those would work for electronics. That's where advanced forms of AI are proving themselves useful.



[metamorworks/Shutterstock.com](#)

A team of researchers at the University of South Carolina College of Engineering and Computing and Guizhou University, a research university located in Guiyang, China, with funding from the U.S. and the Chinese governments, have applied an advanced form of artificial intelligence to the task of finding new combinations of elements that could meet future needs for rare earth resources.

"Considering the huge space of doped materials with different mixing ratios of elements and many applications such as high-temperature superconductors, where six to seven component materials are common, the number of potential materials is immense," notes the paper published in the June issue of *NPJ Computational Materials*.

The researchers apply a Generative Adversarial Network, or GAN, to the problem. GANs work like conventional neural networks but with a twist. Whereas a conventional network might look at

billions of pictures of, say, faces to differentiate a real face from a fake one, a generative adversarial network works that problem in reverse by pitting two neural networks against one another. So, applied to conductive compound discovery, it would work like this: while the first network tackles the problem of analyzing all the potential element combinations to find a good conducting material, the adversarial network works by taking that conclusion and reversing it, reasoning that ‘if this hypothetical material meets the description of being good for electronics, what combination of elements or other factors led to its existence?’ It infers the rules for combining materials to create new conductive compounds based on a hypothetical inorganic material that performs well. The researchers report that they are able to speed up material search by two orders of magnitude.

The paper was supported by grants from the U.S. National Science Foundation as well as the Chinese government’s National Major Scientific and Technological Special Project of China.

Chinese funding of U.S. academic research is facing increasing scrutiny. “For universities, China takes advantage of the commitment to intellectual freedom on campus, which strongly resists government scrutiny of the activities of foreign students in hard science programs and international academic cooperation,” notes a 2018 report from the Hoover Institution.

In January, the head of Harvard’s chemistry and chemical biology lab was indicted for making false statements about receiving funding from the Chinese government. One of his students, a Chinese national, was indicted for attempting to take samples from the lab back to China.

Those high-profile instances deal mainly with the failure of some researchers to disclose funding ties to the Chinese government, which is not the case here. (The paper’s corresponding author declined to answer questions about the National Major Scientific and Technological Special Project of China and its funding process.) But Sen. Tom Cotton, R-Ark., has introduced legislation to basically prohibit Chinese graduate students from studying in any science or technology field in the United States.

That could make discoveries like this one harder for the United States to realize in the future. Chinese students and researchers play a key role in the advancement of U.S. technological capabilities, Eric Schmidt, former Google CEO and the chair of the Defense Innovation Board, said at the *Defense One* Tech Summit in June.

<https://www.nextgov.com/emerging-tech/2020/08/can-ai-solve-rare-earths-problem-chinese-and-us-researchers-think-so/168067/>



Mon, 31 Aug 2020

Scientists use fruit peel to turn old lithium-ion batteries into new

Scientists led by Nanyang Technological University, Singapore (NTU Singapore) have developed a novel method of using fruit peel waste to extract and reuse precious metals from spent lithium-ion batteries in order to create new batteries.

The team demonstrated their concept using orange peel, which recovered precious metals from battery waste efficiently. They then made functional batteries from these recovered metals, creating minimal waste in the process.

The scientists say that their waste-to-resource approach tackles both food waste and electronics waste, supporting the development of a circular economy with zero waste, in which resources are kept in use for as long as possible. An estimated 1.3 billion tonnes of food waste and 50 million tonnes of e-waste are generated globally each year.

Spent batteries are conventionally treated with extreme heat (over 500°C) to smelt valuable metals, which emits hazardous toxic gases. Alternative approaches that use strong acid solutions or weaker acid solutions with hydrogen peroxide to extract the metals are being explored, but they still produce secondary pollutants that pose health and safety risks, or rely on hydrogen peroxide which is hazardous and unstable.

Professor Madhavi Srinivasan, co-director of the NTU Singapore-CEA Alliance for Research in Circular Economy (NTU SCARCE) lab, said: “Current industrial recycling processes of e-waste are energy-intensive and emit harmful pollutants and liquid waste, pointing to an urgent need for eco-friendly methods as the amount of e-waste grows. Our team has demonstrated that it is possible to do so with biodegradable substances.



A waste-to-resource approach to recycling batteries. Credit: NTU Singapore

“These findings build on our existing body of work at SCARCE under NTU’s Energy Research Institute (ERI@N). The SCARCE lab was set up to develop greener ways of recycling e-waste. It is also part of the NTU Smart Campus initiative, which aims to develop technologically advanced solutions for a sustainable future.”

Assistant Professor Dalton Tay of the NTU School of Materials Science and Engineering and School of Biological Sciences said: “In Singapore, a resource-scarce country, this process of urban mining to extract valuable metals from all kinds of discarded electronics becomes very important. With this method, we not only tackle the problem of resource depletion by keeping these precious metals in use as much as possible, but also the problem of e-waste and food waste accumulation – both a growing global crisis.”

The findings were published in the scientific journal *Environmental Science & Technology* in July.

A low-cost, sustainable approach

With industrial approaches to recycling battery waste generating harmful pollutants, hydrometallurgy – using water as a solvent for extraction – is increasingly being explored as a possible alternative. This process involves first shredding and crushing used batteries to form a crushed material called black mass. Researchers then extract valuable metals from black mass by dissolving it in a mix of strong acids or weak acids plus other chemicals like hydrogen peroxide under heat, before letting the metals precipitate.

While relatively more eco-friendly than conventional methods, the use of such strong chemicals on an industrial scale could generate a substantial amount of secondary pollutants, posing significant safety and health risks, said Asst Prof Tay.

The NTU team found that the combination of orange peel that has been oven-dried and ground into powder, and citric acid, a weak organic acid found in citrus fruits, can achieve the same goal.

In lab experiments, the team found that their approach successfully extracted around 90 percent of cobalt, lithium, nickel, and manganese from spent lithium-ion batteries – a comparable efficacy to the approach using hydrogen peroxide.

Asst Prof Tay explained: “The key lies in the cellulose found in orange peel, which is converted into sugars under heat during the extraction process. These sugars enhance the recovery of metals from battery waste. Naturally-occurring antioxidants found in orange peel, such as flavonoids and phenolic acids, could have contributed to this enhancement as well.”

Importantly, solid residues generated from this process were found to be non-toxic, suggesting that this method is environmentally sound, he added.

From the recovered materials, they then assembled new lithium-ion batteries, which showed a similar charge capacity to commercial ones. Further research is underway to optimize the charge-discharge cycling performance of these new batteries made from recovered materials.

This suggests that this new technology is “practically feasible for recycling spent lithium-ion batteries in the industrial sense,” said the researchers.

The team is now looking to further improve the performance of their batteries generated from treated battery waste. They are also optimizing the conditions to scale up production and exploring the possibility of removing the use of acids in the process.

Prof Madhavi, who is also from NTU’s School of Materials Science and Engineering and ERI@N, said: “This waste-to-resource approach could also potentially be extended to other types of cellulose-rich fruit and vegetable waste, as well as lithium-ion battery types such as lithium iron phosphate and lithium nickel manganese cobalt oxide. This would help to make great strides towards the new circular economy of e-waste, and power our lives in a greener and more sustainable manner.”

Reference: “Repurposing of Fruit Peel Waste as a Green Reductant for Recycling of Spent Lithium-Ion Batteries” by Zhuoran Wu, Tanto Soh, Jun Jie Chan, Shize Meng, Daniel Meyer, Madhavi Srinivasan and Chor Yong Tay, 9 July 2020, *Environmental Science & Technology*. DOI: [10.1021/acs.est.0c02873](https://doi.org/10.1021/acs.est.0c02873)

The research, which comes under NTU SCARCE, is supported by the National Research Foundation, the Ministry of National Development, and the National Environment Agency under the Closing the Waste Loop R&D Initiative as part of the Urban Solutions & Sustainability–Integration Fund.

<https://scitechdaily.com/scientists-use-fruit-peel-to-turn-old-lithium-ion-batteries-into-new/>

COVID-19 Research News

ThePrint

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India holds the key for global access to Covid-19 vaccine

India has the potential to play a key role in overcoming vaccine nationalism because it is the major supplier of medicines to the global south

By Rory Horner

The great COVID-19 vaccine race is on. Pharmaceutical companies around the world are going head to head, while governments scramble to get priority access to the most promising candidates.

But a richest-takes-all approach in the fight against the deadliest pandemic in living memory is bound to be counter productive, especially for the recovery of low and middle income countries. If governments cannot come together to agree a global strategy, then the global south may need to pin its hopes on the manufacturing might of India.

Tedros Adhanom Ghebreyesus, the director general of the World Health Organization, has warned that a nationalist approach “will not help” and will slow down the world’s recovery. Yet vaccine nationalism looms large over the search for vaccines, with the US, the UK and the European Commission all signing various advance purchase agreements with manufacturers to secure privileged access to doses of the most promising candidates. The US alone has paid over US\$10 billion (£7.6 billion) for such access.

The ideal global distribution of a successful COVID-19 vaccine would look beyond which countries have the deepest pockets and instead prioritise health workers, followed by countries with major outbreaks and then those people who are particularly at risk.

India has the potential to play a key role in overcoming vaccine nationalism because it is the major supplier of medicines to the global south. Médecins Sans Frontières once dubbed the country the “pharmacy of the world”. India also has, by far, the largest capacity to produce COVID-19 vaccines. Its role in manufacturing a vaccine could come in two different ways – mass-producing one developed elsewhere (likely) or developing a new vaccine as well as manufacturing it (less likely, though not impossible).

Scaling up existing vaccines

India’s Serum Institute has already started manufacturing the University of Oxford/AstraZeneca vaccine candidate before clinical trials have even been completed. This is to avoid any subsequent delay if the vaccine is approved. It is seen by many, including the WHO’s chief scientist, as the world’s leading prospect.

Serum Institute, based in the western city of Pune, is the largest vaccine manufacturer in the world and has a deal to supply 400 million doses by the end of 2020 (1 billion in total). It has also inked a deal for the manufacturing and commercialisation of American firm Novavax’s COVID-19 candidate.

Another Indian pharma company, Biological E (BE), has agreed to manufacture the vaccine candidate of Johnson & Johnson’s subsidiary, Janssen Pharmaceutica NV. The Hyderabad-based firm has since announced its acquisition of Akorn India in order to boost its manufacturing capacity.

Despite India’s success in mass manufacturing, the transition to innovation and new product development has been more of a struggle. Nevertheless the Serum Institute, Aurobindo Pharma, Bharat Biotech, BE, Indian Immunologicals, Mynvax, Panacea Biotech and Zydus Cadila are all attempting to develop their own vaccines.

Bharat Biotech’s Covaxin has attracted the most attention and controversy. The Indian Council of Medical Research wrote to a number of hospitals seeking their help in fast-tracking the clinical trials of the drug, which was developed in collaboration with the National Institute of Virology. The aim had been to launch it by August 15 (Indian Independence Day). Despite the feasibility of that timeline being widely questioned, trials of Covaxin did begin in Delhi on July 15.

Who gets the vaccines?

Uncertainty reigns over who will get these vaccines manufactured in India – and there have been very mixed messages. Regarding the much-hyped Oxford/AstraZeneca vaccine, Adar Poonawalla, the Serum Institute’s CEO, said, “a majority of the vaccine, at least initially, would have to go to our countrymen before it goes abroad”.

He added that the Indian government would decide how much other countries get, and when. In a later interview the CEO went further, adding: “Out of whatever I produce, 50% to India and 50% to the rest of the world”. He also said the Indian government had not objected to this idea.

Vaccine diplomacy may come into play, as indicated by India’s foreign minister, Harsh Shringla, on a visit to Dhaka. He promised that India would supply vaccines to Bangladesh on “priority basis”, stating that India’s “closest neighbours, friends, partners and other countries” will receive privileged access.

Meanwhile, a recent agreement provided a firmer guarantee of Serum-Institute-produced vaccines being supplied outside of the country – at least in 2021. On August 7, Gavi (the global vaccine alliance) announced a collaboration with the Serum Institute and the Bill & Melinda Gates Foundation. The deal provides US\$150m of financial support for the Serum Institute to manufacture and supply 100 million doses of vaccines to the COVID-19 Vaccine Global Access Facility (COVAX) for distribution in low and middle-income countries in 2021.

The deal will support the company’s manufacture of both the AstraZeneca and Novavax candidates and guarantees a price of US\$3 per dose. AstraZeneca’s candidate will be available to 57 Gavi-eligible countries, while the Novavax treatment will be available to 92.

With almost 18% of the world's population, India has strong demand for COVID-19 vaccines. Export bans on some personal protective equipment and key medicines in March set a precedent for prioritising supply to India first. But the bans were short lived and exports continued.

Thanks to its vast manufacturing capacity, India will undoubtedly export vaccines, continuing its role as the “pharmacy of the developing world”. Vinod Paul, chair of India's National COVID-19 Task Force, has spoken openly of his desire to see India play a global role, saying: “The vaccine is not just for India and Indians but for the world and humanity.” The question is when. Many in low and middle-income countries will undoubtedly be hoping it will be sooner rather than later.

<https://theprint.in/features/india-holds-the-key-for-global-access-to-covid-19-vaccine/490925/>

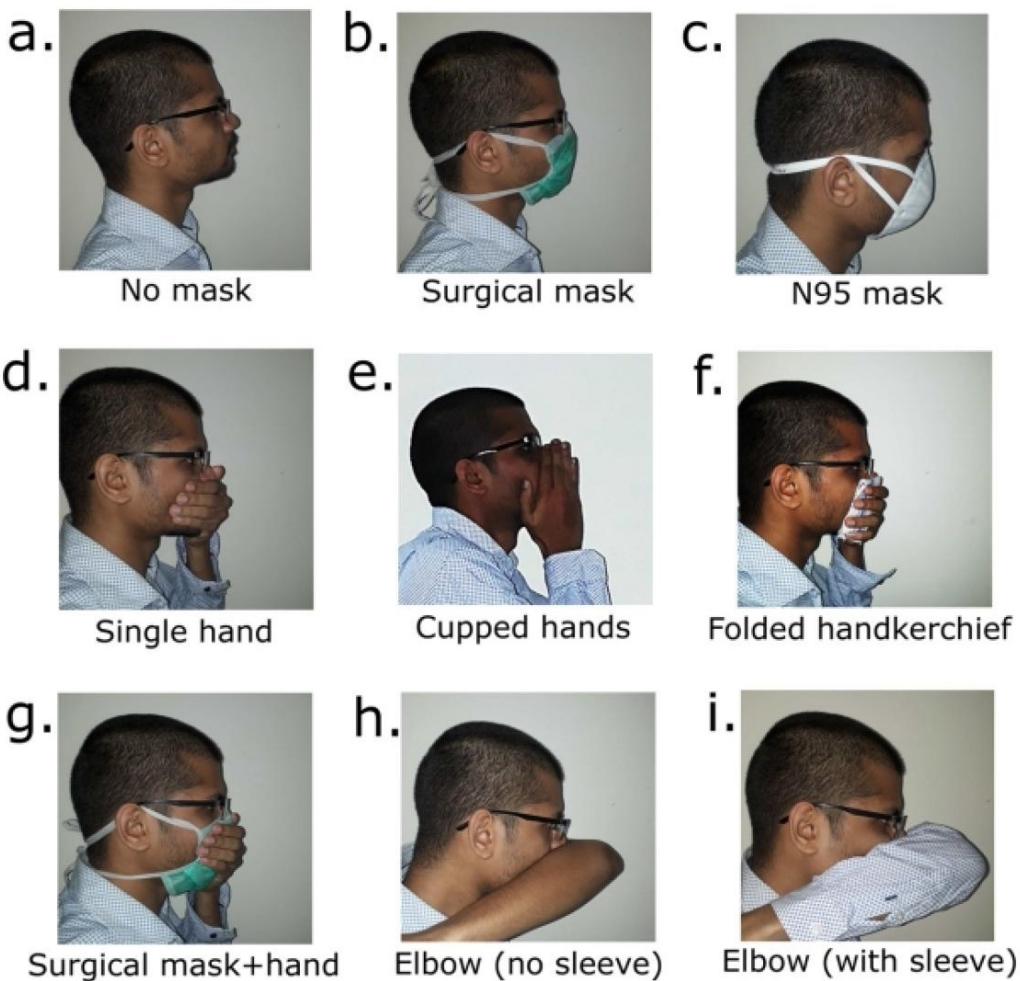


Mon, 31 Aug 2020

Covid-19: Masks do the job, Bengaluru researchers rebut naysayers

By Suraksha P

Disproving naysayers on the use of face masks, research conducted by a city-based cardiothoracic surgeon and his aerospace engineer-son has found that N95 masks are the most effective in reducing the horizontal spread of cough. And wearing any mask, including cloth masks, is better than wearing none.



Credit: Dr Prasanna Simha Mohan Rao

Dr Prasanna Simha Mohan Rao, 54, from the Sri Jayadeva Institute of Cardiovascular Sciences and Research, and his 24-year-old son, Padmanabha Prasanna Simha, from Vikram Sarabhai Space Centre, Thiruvananthapuram, visualised and researched the cough flow fields under various common mouth-covering scenarios. Their paper, published in the journal *Physics of Fluids* on August 24, has elicited interest from The Optical Society of America, which has reached out to them.

The research findings come at a time when social media is awash with articles and videos on the "harms" of face masks. Speaking to DH, Dr Rao said the videos peeved him.

Jayadeva hospital director Dr CN Manjunath, who's a member of Karnataka's Technical Advisory Committee, said he planned to have the study findings on the meeting agenda of the committee so that a public advisory is sent out to naysayers spreading misinformation about masks.

Dr Rao and his son used Schlieren imaging, which shows the density of the cough droplets, their motion, velocity and spread.

"Schlieren imaging measures temperature and density gradients. When you cough, there is warm air, which is less dense than the ambient air. So we could see how it travels. We positioned our subjects farther away from each other. When we cough, there is a contamination bubble around us where we can infect each other. With a three-ply surgical mask, the bubble is 0.5 to 1.5 metres," Dr Rao explained.

Dr Rao, however, said they were not suggesting that everyone buy N95 masks. Wearing any mask, including cloth masks, is better than wearing none. An N95 mask is the most effective because it limits the spread of the salivary droplets between 0.1 and 0.25 metres, he explained. With a disposable mask on, the droplets travel up to 2.5 metres, and when the mouth is not covered, it could travel up to three metres. There is also a reduction of velocity in the droplets by up to ten times when one is wearing an N95 mask, he added.

The father-son duo started the study before the first lockdown in March when India was just beginning to report Covid cases. Dr Rao went on to explain that Indians tend to use their arms or elbows to cover their mouths while coughing which was proved to be ineffective during their study.

<https://www.deccanherald.com/city/top-bengaluru-stories/covid-19-masks-do-the-job-bengaluru-researchers-rebut-naysayers-880252.html>

