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TIMESNOWNEWS.COM

Tue, 25 Jan 2022

Exclusive: India to sell BrahMos to Philippines; deal likely to be signed on Jan 28

The defence deal involves the sale of two BrahMos launchers with a standard complement of missiles.

By Srinjoy Chowdhury

New Delhi: A $375 million dollar defence deal may not sound like much; some defence deals are worth billions of dollars. But this one is special, it's a breakthrough because India isn't buying anything. Rather, India is selling indigenously made high-class weaponry to another country.

India is selling BrahMos cruise missiles, co-developed with Russia to the Philippines, the deal likely to be signed on January 28 at the headquarters of the country's National Defence department in Quezon City.

Representational Image| Photo Credit: ANI

The Philippines and China have an ongoing territorial dispute. After the Philippines went to international courts for arbitration and received a favourable judgement, the Chinese have refused to accept it.

This is perhaps one of the first occasions that India is selling high-grade weaponry and the three hundred and seventy four million, nine hundred and sixty two thousand dollar deal is a significant step forward. It involves the sale of two BrahMos launchers with a standard complement of missiles. A similar deal is under discussion with Vietnam: it involves the transfer of Aakash air-defence missiles.

In a note on December 31, 2021, to Brahmos by Delfin Lorenzana, secretary, Department of National Defence of The Philippines, said the proposal for the "shore-based anti-ship missile system acquisition project for the Philippine Navy...is accepted."

The BrahMos is an Indo-Russian co-production: the cruise missile is supersonic with a range of about 300 km and is very accurate. It can be fired from land, from a ship and now, from the air. Having such a potent missile in its armoury will give the Philippines Navy enormous deterrent capabilities.

https://www.timesnownews.com/india/article/exclusive-india-to-sell-brahmos-to-philippines-deal-likely-to-be-signed-on-jan/852642

Business Standard

Tue, 25 Jan 2022

Chennai-based Data Patterns wins Rs 27 cr DRDO order for e-warfare units

The order is for a new programme that will allow next-generation wideband EW receivers to be configured for naval, land and aerial platforms

By Shine Jacob

Chennai: Chennai-based vertically integrated defence and aerospace electronics solutions provider Data Patterns (India) has received a development order for Rs 27 crore from Defence Research and Development Organisation (DRDO) for the next generation wideband RF front end units for Electronic Warfare (EW) receivers.

The order is for a new programme that will allow next-generation wideband EW receivers to be configured for naval, land and aerial platforms. The wideband RF front ends allow faster scanning of enemy emitters to enable better electronic intelligence with enhanced detection and avoidance. The specifications not only allow faster scan rate but also better dynamic range providing better detection.

"We are happy to receive yet another prestigious order from DRDO. This contract enhances the continuing leadership of Data Patterns in the homegrown EW segment with EW products comparable to international specifications. It also gives us another opportunity to showcase our indigenous capability in cutting edge defence technologies," said Srinivasagopalan Rangarajan, Managing Director, Data Patterns (India).

Data Patterns has developed a wide range EW receivers and Direction Finders including wideband Radar Warning Receivers, Electronic Intelligence (ELINT) Systems and Communication Intelligence (COMINT) Systems for air, land and sea platforms with DRDO.

Data Patterns' core competencies include design and development across electronic hardware, software, firmware, mechanical, product prototype besides its testing, validation and verification. The company works closely with the defence PSUs such as Hindustan Aeronautics Ltd and Bharat Electronics Ltd as well as government organisations involved in defence and space research like DRDO and ISRO.

https://www.business-standard.com/article/companies/chennai-based-data-patterns-wins-rs-27-cr-drdo-order-for-e-warfare-units-122012400787_1.html

DRDO on Twitter

24 January 2022

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Mon, 24 Jan 2022 6:55PM

Ministry of Defence organises series of eight webinars in the run up to the Defexpo 2022

Ministry of Defenceis hosting the 12th edition of prestigious biennial defence exhibition Def Expo 2022 from 10th to 13th Mar 2022 at Gandhinagar, Gujarat. This mega defence International Exhibition is focussing on Land, Air, Naval, Internal Homeland security and electronic systems. The event provides a unique opportunity for firms within the defence industry to showcase their capabilities, products & services to the targeted audience of Industry leaders and business decision makers. Government of India with policy initiative of 'Make in India" and 'Atmanirbhar Bharat" believes that India has tremendous potential to become a leading supplier of complete defence solutions to many of its friendly nations. Theme for Defexpo 2022 is “India-The Emerging Defence Manufacturing Hub”.

In the run up to the Defexpo, a series of 8 webinars are being conducted between January 20, 2022 and February 24, 2022 with participation from leading luminaries and eminent speakers. The Defexpo webinars are focused on path breaking topics and will be streamed worldwide.

The details of webinars, schedule, speaker's profile, and the link for participation for each webinar session are made available on Defexpo website (https://defexpo.gov.in). The schedule of the webinar is as follows:-

Webinar schedule

Sl. No	Date	Conducting Organization/Speaker	Topic
1	20/01/2022 15:00hrs -16:30 hrs	**SIDM**	Opportunities and way ahead for India's role in global Defence manufacturing
2	24/01/2022 11:00 hrs-12:00 hrs	**Synergia Foundation** Sh. Tobby Simon President, Synergia Foundation and other eminent speakers	The Future of warfare (Primarily in Asia)
3	03/02/2022 15:30 hrs-17:00 hrs	**ASSOCHAM**	Synergy of policies of GOI for ease of doing business
4	09/02/2022 15:00 hrs-16:00 hrs	**DRDO** Chairman, DRDO	Building ecosystem for advanced Technology based systems
5	11/02/2022 15:30 hrs-17:00 hrs	**ASSOCHAM**	Addressing gaps in Defence Production: Industry 4.0, Additive manufacturing etc.
6	14/02/2022 11:00 hrs-12:00 hrs	**DGAQA** Sh.Achandrasekaran, Director/Aircraft, DGAQA	Recent QA initiatives in the field of Military Aviation
7	17/02/2022 15:00 hrs-16:00 hrs	**Bharat Chamber**	Rejuvenating Defence Production and Exports from Eastern India
8	24/02/2022 15:00 hrs-16:45 hrs	**Bharat Shakti** Moderator: Sh. Nitin Gokhale	Indian Defence Industry's growth linked umbilically to MSMEs

The webinars are being streamed live on YouTube channel of Department of Defence Production and the recordings of webinars are also being made available on Defexpo 2022 website.
https://pib.gov.in/PressReleasePage.aspx?PRID=1792241

INDIA TODAY

Tue, 25 Jan 2022

Navy holds high level meeting on creation of Maritime Theatre Command

Indian Navy held a high level meeting with officers from the Army and the Air Force on creating a Maritime Theatre Command, to take care of threats to India and its island territories.

By Manjeet Negi

New Delhi: Indian Navy held a high level meeting with officers from the Army and the Air Force on creating a Maritime Theatre Command to look for threats from the maritime zone. It is aiming to set up a functional joint fighting formation by the end of this year.

A high level meeting headed by Vice Admiral AB Singh was held on Thursday last week to discuss the structure of the proposed command, top government sources told India Today.

The proposed command will look after the Indian maritime zone from Andamans in the east to the Lakshadweep in west apart from maintaining strict vigil in the areas of country's interest in the entire Indian Ocean and Pacific region.

Navies of India, the United States, Japan, and Australia participate in the second phase of the Malabar naval exercise, in the Arabian Sea. (Photo: ANI file)

The Indian Air Force expressed its reservations regarding the creation of these commands and the structures proposed in them. The IAF has been opposing the structures proposed in the four theatre commands planned to be set up by the Department of Military Affairs.

The meeting was part of the study and exercise by the Indian Navy to suggest the structures of Maritime Theatre Command as part of the Indian Navy's study on the issue. All three forces have been asked to carry out studies for the creation of Theatre Commands in their respective domains.

Sources said the Indian Air Force and the Indian Army were represented by their officials deployed in the southern parts of the country. The Indian Air Force was represented by an Air Vice Marshal posted in Mumbai for coordinating the maritime air operations. "During the meeting, the Indian Air Force expressed its reservations on the structures proposed," sources said.

The Indian Air Force is in favour of the creation of theatre commands but has expressed reservations on the number of new commands to be created within the given resources and assets. The DMA under late Chief of Defence Staff General Bipin Rawat had asked the three forces to submit their respective studies related to theatre commands by April this year. The Indian Army has nominated Central Army commander Lt Gen YK Dimri along with South Western Army commander Lt Gen Amardeep Singh Bhinder to conduct the study for the creation of these commands.

Sources said the plan of the DMA is to create four new theatre commands which will not include the most sensitive Ladakh sector which has seen two aggressions by the armies of Pakistan and China respectively in the last two decades.

The meeting in Mumbai under Vice Admiral AB Singh was the first major meeting on the issue of the creation of theatre commands after the death of General Rawat in a chopper crash. Singh being the senior-most officer in the Commander-in-Chief rank in the Navy is also likely to become the first Maritime Theatre Commander.

With the studies expected to be submitted by April, sources said it is likely that the government may announce the creation of the Maritime Theatre Command by August 15 this year.

https://www.indiatoday.in/india/story/navy-holds-high-level-meeting-on-creation-of-maritime-theatre-command-1903961-2022-01-24

Press Information Bureau
Government of India

Ministry of Defence

Mon, 24 Jan 2022 7:30PM

Delivery of 50ton Bollard Pull Tug "Balbir" to Naval Dockyard Visakhapatnam By M/S Hindustan Shipyard Ltd

Contract for construction of 50Ton Bollard Pull Tugs was concluded with M/s Hindustan Shipyard Ltd, Visakhapatnam in Feb 19. The Fourth tug in the series, "Balbir" has been delivered to Naval Dockyard, Mumbai on 24 Jan 22. These tugs have been designed and built under the classification rules of Indian Register for Shipping (IRS) with a service life of 20 years and are capable of assisting large naval ships, including Aircraft Carrier and Submarines in berthing, un-berthing, turning and manoeuvering in confined waters and in harbour. They also provide afloat firefighting cover/assistance to ships alongside/anchorage and have limited capability for Search and Rescue operations.

Induction of 50Ton Bollard Pull Tugs has significantly augmented the auxiliary support services and enhanced the capability to meet high operational requirements of Fleet assets of Indian Navy. With all major and auxiliary equipment/system sourced from indigenous manufacturers, these tugs are proud flag bearers of "Make in India, Make for the World" initiatives of Ministry of Defence in consonance with "Atmanirbhar Bharat". Tugs "Veeran" and "Balraj" have been inducted on 22 Oct 21 and 31 Dec 21 at Naval Dockyard, Visakhapatnam respectively and "Balram" on 30 Oct 21 at Naval Dockyard, Mumbai. Despite unprecedented challenges posed due to the impact of 1st and 2nd wave of the Covid-19 pandemic, M/s Hindustan Shipyard Ltd has put in untiring and concerted efforts to deliver these tugs to Indian Navy.

https://pib.gov.in/PressReleasePage.aspx?PRID=1792265

THE TIMES OF INDIA

Tue, 25 Jan 2022

Army signs contract with ideaForge to procure additional SWITCH1.0 drones

New Delhi: The Indian Army has again signed a contract with ideaForge to procure an undisclosed number of a high-altitude variant of SWITCH1.0 unmanned aerial vehicles (UAVs) to strengthen its surveillance along the Line of Actual Control (LAC), military officials said. The Army had in January 2021 signed the previous contract with the Mumbai-based company to supply an undisclosed number of SWITCH1.0 drones for approximately $20 million.

In a statement on Monday, ideaForge said it has fulfilled the January 2021 contract by supplying the specified number of SWITCH1.0 drones to the Indian Army within the prescribed time limit.

The company said the Indian Army has "entrusted" it with "an additional order" for the same UAV. The new order is similar to the previous one, the company stated.

SWITCH1.0 UAV is a fixed-wing drone that is capable of vertical takeoff and landing and it can be deployed at high altitudes and harsh environments for day-and-night surveillance.

In its statement, the company quoted a "Defence Official" saying that: “We have received deliveries of the SWITCH 1.0 UAVs in time and are eager to strengthen our northern and eastern borders with swift induction of this force multiplier technology."

The UAVs will strengthen India's surveillance along the Line of Actual Control (LAC), military officials said.

The statement quoted ideaForge CEO Ankit Mehta as saying that the additional order for SWITCH1.0 UAV is a testament to its class leading capabilities which have been exhibited not only during the product trials against a dozen global players but also in the operational environment.

"We have completed the delivery of the previous order in time and are gearing up to deliver the additional order within the set timelines as well," Mehta noted.

https://timesofindia.indiatimes.com/india/army-signs-contract-with-ideaforge-to-procure-additional-switch1-0-drones/articleshow/89098490.cms

THE ECONOMIC TIMES

Tue, 25 Jan 2022

AK 203 deal: Initial batch of 70,000 rifles delivered to armed forces by Russia

Synopsis

The armed forces have received the first batch of 70,000 rifles from Russia as part of a larger contract to manufacture the AK 203 assault rifles in India. The initial batch has been delivered at a fast pace as requested by India, despite the Covid-19 pandemic.

The armed forces have received the first batch of 70,000 rifles from Russia as part of a larger contract to manufacture the AK 203 assault rifles in India. The initial batch has been delivered at a fast pace as requested by India, despite the Covid-19 pandemic.

Sources said that the first batch is likely to be used by the air force, while the rifles to be manufactured at the Amethi factory will be delivered to the army, which is the main customer with a requirement of over 600,000 AK 203s.

Representational image

The rifles are being manufactured with a complete technology transfer clause that will also enable their exports to friendly foreign nations in the near future. The manufacturing will be done by the Indo Russian Rifles Private Limited Joint Venture between Advanced Weapons and Equipment India Ltd (erstwhile OFB) and Russian Rosoboronexport.

The '5,124-crore deal was signed between India and Russia in December-the biggest defence deal between the two nations in recent time. The Russian side has given an assurance that the manufacturing with technology transfer will start within two to three years, with technical teams being sent to assist Indian partners.

The Korwa Rifle Factory in Amethi is being upgraded with a modern production line where the latest version of the Kalashnikov rifles are to be manufactured. A small arms range has also been set up at the factory where the acceptance trials can also be conducted by the armed forces before taking delivery.

https://economictimes.indiatimes.com/news/india/ak-203-deal-initial-batch-of-70000-rifles-delivered-to-armed-forces-by-russia/articleshow/89102009.cms

THE ECONOMIC TIMES

Tue, 25 Jan 2022

Government sets norms for guns to counter drones

By Rahul Tripathi

Synopsis

As per the guidelines, approved with suggestions from the BSF, the anti-drone guns will be required to destroy unmanned aerial vehicles (UAVs) or groups of UAVs (swarm attack) from at least 1,000 metres for nano UAVs and 2,500 metres for large UAVs.

The government has cleared the guidelines for anti-drone guns to be deployed by security forces for neutralising rogue drones in border areas, said officials.

The Border Security Force (BSF), National Security Guards (NSG) and Defence Research and Development Organisation (DRDO) are also working to develop an indigenous anti-drone system.

"The recent drone strikes at Abu Dhabi have demonstrated the threats from rogue drones. The security at the vital installations near the border is constantly under review," said a home ministry official, who did not wish to be identified.

As per the guidelines, approved with suggestions from the BSF, the anti-drone guns will be required to destroy unmanned aerial vehicles (UAVs) or groups of UAVs (swarm attack) from at least 1,000 metres for nano UAVs and 2,500 metres for large UAVs.

Further, as per the guidelines, "the technology should be capable of neutralising the flying objects (like copters, fixed wing UAVs and radio-controlled UAVs in different categories in specified range) and jam all-operating GPS, standard remote-control frequency of the UAV". Officials said suggestions have been sought from drone manufacturers and experts to improve the anti-drone grid.

"The recent drone strikes at Abu Dhabi have demonstrated the threats from rogue drones. The security at the vital installations near the border is constantly under review," said a home ministry official, who did not wish to be identified.

On January 17, Yemen's Houthis targeted the Musaffah ICAD 3 area and the new construction area at Abu Dhabi International Airport, both civilian infrastructure. The attacks led to the explosion of three petroleum tankers, killing two Indian civilians and one Pakistani civilian and injuring six others, including two Indians.

Last year, improvised explosive devices (IEDs) were dropped at Jammu's Indian Air Force base station using drones that were suspected to have originated from across the border. The probe, being conducted by the National Investigation Agency (NIA), is yet to make any significant breakthrough. The border state of Punjab has witnessed 150 drone sightings, from 2018-21, while many of them remained unaccounted for. Most of these UAVs are loaded with IED, explosive hand grenades and weapons.

"Rogue drones also pose risks to vital installations. The installations are vulnerable and have the potential to cripple the smooth functioning of the country," said another official, who also did not wish to be identified.

https://economictimes.indiatimes.com/news/defence/government-sets-norms-for-guns-to-counter-drones/articleshow/89101333.cms

The EurAsian Times

Tue, 25 Jan 2022

China to equip its J-20 Fighters with laser weapons; will PLAAF stealth jets go 'One-Up' over US, Indian warplanes?

By Sakshi Tiwari

China's J-20 Mighty Dragon has been in the news for a week now. After night drills and the engine upgrade, there are now reports claiming that the fifth-generation stealth fighter could be equipped with Directed Energy Weapons (DEWs).

Additionally, they can perform a variety of roles such as small early warning aircraft or drone command and control center, the Chinese state media reported quoting experts.

"I believe our industrial departments can turn some of our ideas into reality, including those from the current trend of aviation main battle equipment," Wang Mingliang, a Chinese military expert, was quoted as saying in a China Central Television (CCTV) program, reported the Global Times.

According to Wang, the J-20 might be armed with directed-energy weapons or upgraded radar and fire control systems to serve as a small early warning aircraft.

The aircraft might also become capable of autonomous flight, said Wang, noting that the J-20 could undertake coordinated operations with drones by leading or commanding a drone swarm in combat.

A concept of directed energy weapon (Image: Lockheed Martin)

China was developing an airborne laser attack pod, according to official television CCTV in early 2020. Laser defense weapon systems, such as the LW-30, which may be used to intercept aerial targets, have also been demonstrated by Chinese defense firms during exhibitions.

Since there is no time delay with lasers, they are an excellent instrument for aerial interception. However, they require a lot of energy to be successful, which is an issue that must be addressed before they can be put on an aircraft, according to analysts as quoted by Global Times.

It is pertinent to note that the Chinese are not going to be the first to use DEWs on their aircraft as western nations including the US are conducting similar experiments.

US Much Ahead in the Race?

In October last year, the US Air Force had announced that Lockheed Martin AC-130J Ghostrider, the ground attack variant of the C-130 Hercules transport aircraft, was getting high-powered laser weapon, as previously reported by the EurAsian Times.

Earlier, at the White Sands testing range in New Mexico, an Apache chopper successfully tested a high-energy laser pod on targets—the first laser weapon ever used by a helicopter.

The Air Force had apparently been actively focusing on the High Energy Liquid Laser Air Defense Device (HELLAD), a 150-kilowatt system that combines liquid cooling and solid-state laser technology, according to a previous article on National Interest. Fighter jets, Reaper drones, and even aerial-refueling tankers could all use HELLADS on a turret mount.

Another article that appeared in February last year stated that ground testing and laboratory demonstrations have been ongoing at Kirtland Air Force Base in New Mexico for several years in order to examine, test, and develop future laser weapons applications with the hopes of deploying the weapons for aerial operations in the next few years.

Long-range, high-power precision laser weapons will soon be able to incinerate enemy aircraft or even ground targets as stealth fighter jets maneuver faster than the speed of sound in the skies.

The USAF operates two stealth fighter jets — the F-22 Raptors and F-35 Lightning II jets. So, if these assertions are anything to go by, the American stealth fighters could soon have laser weapons and other DEWs.

Further, a House Armed Services Committee hearing on the Air Force's Fiscal Year 2022 budget request had talked about a sixth-generation aircraft set to succeed the Raptors under the Next Generation Air Dominance (NGAD) program. This new aircraft will definitely be a stealth fighter with Laser weapons, apart from other significant upgrades.

Closer to China, just across the border, India has revealed plans for Directed Energy Weapons. Not too long ago, the Indian Air Chief emphasized that the IAF has its own strategy in place, which includes directed energy weapons, unmanned wingmen, and other cutting-edge technologies.

DEWS, which consists of high-energy lasers and high-power microwaves, is being developed by the Defence Research and Development Organisation (DRDO).

The DRDO-built DEWS will come in a variety of configurations, each consuming up to 100 kilowatts of power. The DEW with a classified 'Kali' particle-beam for approaching missiles and planes is the most promising to be produced, as previously reported by the EurAsian Times.

The Indian Army is also set to receive the 100-kilowatt lightweight directed-energy system under the classified project DURGA II (Directionally Unrestricted Ray-Gun Array). The scientists have maintained that the DURGA II is to be integrated with land, sea, and air-based platforms.

So, China might see DEWs on its J-20s but it is not going to be the only one. But there's a need to put in perspective why there are these new weapons sought after and what does this mean for the future.

Why DEWs Could Be The Next Big Thing

DEWs are weapons that use highly concentrated energy, such as lasers, microwaves, or particle beams, to destroy, harm, or incapacitate their targets. For their operation, they use a concentrated electromagnetic energy beam. They can operate at high speeds in order to create as much disruption as possible to facilities, vehicles, persons, and equipment.

DEWs are extremely useful in reducing the likelihood of fatalities, serious or permanent injuries, or unintended material or infrastructure damage. Some are designed to be nonlethal dispersal and denial devices that are both silent and undetectable to the naked eye.

To fight against drone assaults, numerous militaries are developing these technologies (High-Energy Laser Weapon System or HELWS). Laser weapons may reach their target in milliseconds. As a result, they're particularly well-suited to engaging fast-moving targets. Turkey is believed to have used an ALKA-class weapon to destroy a Libyan UAV in 2019.

In the light of these developments, China's assertion about using DEWs on its J-20s does not sound out of place, although it is not clear as to how these weapons will be integrated into the aircraft.

"The use of the phrase Directed Energy Weapon (DEW) in the context of fighter aircraft capability smacks of hyperbole and is only a little bit less ridiculous than calling a laser pointer used during presentations a DEW," says veteran fighter pilot and defense analyst Vijainder K Thakur.

DEW, in normal discourse, implies an ability to inflict physical damage through energy transfer. A DEW pulse requires a massive amount of energy. The world doesn't have the technology to generate the required amount of energy even in a large transport aircraft, let alone a fighter.

Russia's Peresvet laser weapon, which is believed to have the capability to physically damage low orbit satellites and blind geosynchronous orbit satellites, also requires a heavy ground-based generator set to fire a pulse.

Currently, fighters like the MiG-35 have enough spare electrical power to generate a laser pulse that can blind the very sensitive IIR seeker of an air-to-air or surface-to-air missile. What the MiG-35 has is a laser blinding capability against an IIR seeker, not a DEW. It is likely that the author of the article is alluding to the possibility of featuring such a capability on the J-20, added Thakur referring to the Global Times article.

A laser-based missile blinding capability is not game-changing because, whenever possible, air engagements involve the simultaneous launch of two missiles at the same target, with one missile being equipped with an IIR seeker and the other a radar seeker.

"Sixth-generation fighters are likely to be equipped with more powerful engines that would facilitate more electrical power generation allowing for some DEW capability such as the ability to fry electronics in sensors in missiles that come in close proximity. The world is still many years away from that capability."

Experts have suggested that the sixth-generation fighter aircraft are expected to be equipped with Directed Energy Weapons. America's NGAD, Britain's Tempest, Europe's FCAS, and India's AMCA — the list is long.

Air Vice-Marshal Pranay Sinha of Indian Air Force (retired) told the EurAsian Times – The Air Force, all around the globe has long desired an airborne laser, especially a podded Fiber optic-based laser defensive system so that it can take out surface-to-air and air-to-air missile threats more cheaply than current intercept methods.

Israel has claimed of having counter-drone capability with an airborne DEW system. But when we talk of the airborne system especially on a fighter aircraft, where the real estate is at a premium due to the requirement of the system's size, weight, thermal load, cooling system and supply of high continuous power, these are challenges. Also, target accuracy & scatter factor due to environmental conditions for hit efficiency and accuracy is much-desired especially for hard sheltered ground targets.

Chinese obsession with claiming anything and everything as a game-changer, in my opinion, is more of propaganda value and for chest-thumping. But yes some advances in this field can't be ruled out by the Chinese.

That said, China's plans are not a path-breaking development and the future could be dominated by DEWs. It remains to be seen if China can successfully integrate such systems into its J-20 fighter planes.

https://eurasiantimes.com/china-to-equip-its-j-20-fighter-jets-with-laser-weapons-plaaf/

THE ECONOMIC TIMES

Tue, 25 Jan 2022

Pakistan inducts China-made multi-role frigate in its navy

Synopsis

Pakistan on Monday inducted a China-made multi-role frigate and 10 helicopters provided by Qatar in its navy as part of efforts to strengthen its sea frontiers.

Pakistan on Monday inducted a China-made multi-role frigate and 10 helicopters provided by Qatar in its navy as part of efforts to strengthen its sea frontiers.

The induction ceremony of PNS Tughril, the first of four Type 054-A/P frigates, made by China and 10 Sea King helicopters was held at PN Dockyard, Karachi, according to a statement by Pakistan Navy (PN).

The contract for four multi-role frigates for Pakistan Navy was signed between Pakistan and China in June 2018 and the PNS Tughril is the lead ship of Type 054-A/P, while the Sea King helicopters were gifted by Qatar.

PNS Tughril is the first ship of its kind that was built at a shipyard in Shanghai. It is a multi-mission capable ship, fitted with weapons such as Surface-to-Air (SAM) and Supersonic Surface-to-Surface Missiles (SSM).

Pakistani Navy

"The state-of-the-art ship can carry out numerous maritime operations due to installation of weapons and sensors," according to the PN statement.

President Dr Arif Alvi, who was the guest of honour at the event, expressed satisfaction and confidence that a highly capable Pakistan Navy Fleet and its air arm will continue promoting peace and stability while "guarding our maritime frontiers".

Chief of the Naval Staff, Admiral Amjad Khan Niazi, underlined that the new inductions would further augment PN combat capabilities.

The new frigate is named after Tugrul, a Turkoman chieftain who founded the Seljuk Empire which ruled over modern-day Iran, Iraq, Syria, and Turkey between the 11th and 14th centuries.

It is said that the Type 054A/P is Pakistan Navy's most capable warship to-date and will help to safeguard the maritime boundary and allied interests.

https://economictimes.indiatimes.com/news/defence/pakistan-inducts-china-made-multi-role-frigate-in-its-navy/articleshow/89099500.cms

Science & Technology News

THE WEEK

Mon, 24 Jan 2022

Weaponising space not ISRO's mandate, says new Chief S. Somanath

By Rekha Dixit

He is a film buff, and has offered to sit for a session dedicated only to discussing film dialogues—be they from potboilers or classics, Akira Kurosawa or Adoor Gopalakrishnan. S. Somanath, 58, the chief of Indian Space Research Organisation (ISRO) himself has a cine star flamboyance about him, with his thick mop of hair, dark moustache and stylish mannerisms. Unlike the stereotypical scientist, he is an excellent, if breathlessly fast-paced, communicator, who can convince not just top decision makers about a proposal, but explain rocket science to school students in a way that they see themselves flying out in a spaceship.


S. Somanath | Rinkuraj Mattancheriyil

The rock-star personality hides the keen mind of a rocket scientist and aerospace engineer that has made him ISRO's go-to trouble-shooter. Whether it was fixing a last minute issue with the first PSLV launch in 1994 or detecting the helium leak in the GSLV Mk III rocket for Chandrayaan-2 in 2019, Somanath was part of the team.

He takes over at a time when India is entering a new age in space, opening up for private enterprise. At the same time, ISRO itself is emerging from the setbacks of the pandemic. He has the task of flying Indian astronauts into orbit and landing a probe on the moon. Here is Somanath, himself, in conversation with THE WEEK:

Q/What will be your top priorities as you take charge? There appears to be a lot of unfinished work at ISRO.

A/No, there is no unfinished work. There are new works which require to be done. I believe work is progressing everywhere—it starts, continues and gets finished. So, there is work in progress, nothing is unfinished. There are new works which require to be done. But that is only one part of the activity.

More important, now, is to give direction for the future, and a lot is going to happen in this front. The government has started reforms in the space sector, but it only gives an overarching idea. The department of space has to convert it into an action plan. We need to create new verticals.

We created NewSpace [India Limited]. A top priority is to get it fully functional, so that new actors can come in. We also have to make new policies. At present, there is no legislation or policy directing how new players can enter the space sector. We need to work out legal issues for activities like launch authorisation and frequency management.

A third aspect will be on how to convert the space sector into a bigger operating environment and bring in more business. Technology is inspiring, but it will sustain only if it gets into a business environment, producing self-sustaining results. Otherwise, our space sector will continue working as a government-subsidised programme.

Q/What is ISRO's role in India's first manned deep sea probe, Samudrayaan?

A/We will make the human-rated titanium sphere, in which the team can descend to a depth of 6,000 metres. It will be two metres in diameter and made of titanium. When we learnt that National Institute of Ocean Technology (NIOT) was looking for a shell manufacturer, I offered that ISRO team up. K. VijayRaghavan, the principal scientific advisor to the government of India, liked our proposal and we got the mandate. Various stages of manufacture will be at different facilities across India.

Q/There are big ticket missions, which seem to be behind schedule. Will their deadlines be shifted?

A/I have not studied them, so I cannot comment on it. We have been working on deadlines given by my previous chairman, but if I have to answer your question, I will have to first study it myself. We are working on big exploratory missions—Gaganyaan, Chandrayaan-3, the solar probe Aditya. Many spacecrafts were waiting to be launched, too.

Q/How much has the pandemic impacted ISRO's work?

A/It has certainly impacted us in a big way and made us think about evolving another work model. At present, our work is spread across various centres in the country, it is not under a single facility. The model was evolved to make use of the strengths of various facilities and minimise costs. However, it entails a lot of travelling of personnel and transporting material back and forth; every activity cannot be shifted into the virtual mode.

Take the example of making a cryogenic engine—it involves at least five work centres spread across the country. To conduct a launch from SHAR [Sriharikota Range] several teams of people have to travel at various stages. Our model created a bottleneck during the lockdowns. We did what we could in a limited way, but the pace was greatly reduced.

Q/What lessons did ISRO learn from the pandemic?

A/(Laughs) Why just ISRO, the country, the world, has learnt a lesson that despite medical advances, pandemics are possible and that they can disrupt economies and livelihoods. But we are good at finding solutions to problems. We developed new mechanisms for remote inspection of manufacturing, new systems of procurement.

Q/How do you see ISRO evolving over the next few years?

A/Since I am secretary, department of space, I will not just talk about ISRO, but the entire space sector. The department should not just remain a promoter of ISRO, but an enabler for anyone who wants to create new enterprises, new technologies. ISRO will always remain the prime organisation

with technological supremacy. I see the space sector growing substantially; its monetary value should grow three to five times the present amount.

Q/ISRO has started space explorations. Will we see space tourism next?

A/Space tourism is happening elsewhere, but it can never be a priority for ISRO. How can we use public funds for such activities? A private entrepreneur, however, can always take it up as a commercial activity in the country, taking advantage of the new space enterprise-enabling outlook of the government.

Q/Will there be militarisation of space under the new policy? What will be your role in it?

A/Space can be used for peaceful or not so peaceful purposes. We are a peaceful organisation; we develop technology for peaceful purposes. There are departments—armed forces and strategic groups—which are mandated with protecting India's strategic assets. It is not the mandate of the department of space or the ISRO. We are technology holders of many things, whatever help is required, we will continue to give.

Q/How do you want to see ISRO evolve during your tenure?

A/I would like to see the substantial change and expansion. The type of inspiration ISRO has created over years needs to be sustained.

https://www.theweek.in/theweek/specials/2022/01/20/weaponising-space-not-isro-mandate-says-new-chief-s-somanath.html

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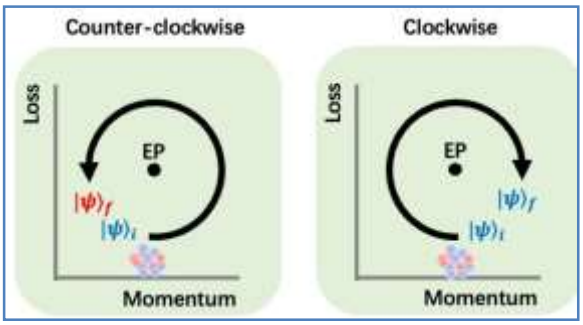
Researchers find new way of gaining quantum control from loss

Researchers at the Hong Kong University of Science and Technology (HKUST) have demonstrated a new way to control the quantum state through the loss of particles—a process that is usually avoided in the quantum device, offering a new way towards the realization of unprecedented quantum states.



A new study finds that quantum state evolution is direction dependent in the parameter space of dissipative spin-orbit coupled system. Credit: Dong Liu

Manipulating a quantum system requires a subtle control of quantum state with zero imperfect operations, otherwise the useful information encoded in the quantum states is scrambled. One of the most common detrimental processes is the loss of particles that consist of the system. This issue has long been seen as an enemy of quantum control and was avoided through the isolation of the system. But now, researchers at the HKUST have discovered a way that could gain quantum control from loss in an atomic quantum system.

The finding was published recently in *Nature Physics*.

Prof. Gyu-Boong Jo, lead researcher of the study and Hari Harilela Associate Professor of Physics at HKUST, said the result demonstrated loss as a potential knob for the quantum control.

"The textbook taught us that in quantum mechanics, the system of interest will not suffer from a loss of particles as it is well isolated from the environment," said Prof. Jo. "However, an open system—ranging from classical to quantum ones, is ubiquitous. Such open systems, effectively described by non-Hermitian physics, exhibit various counter-intuitive phenomena that cannot be observed in the Hermitian system."

The idea of non-Hermitian physics with loss has been actively examined in classical systems, but such counter-intuitive phenomena were only recently realized and observed in genuine quantum systems. In the study, HKUST researchers adjusted the systems' parameters such that they sweep out a closed loop around a special point—also known as an exceptional point occurring in the non-Hermitian system. It was discovered that the direction of the loop (i.e. whether it goes clockwise or anti-clockwise) determines the final quantum state.

Jensen Li, Professor of Physics at HKUST and the other leader of the team, said, "This chiral behavior of a directional quantum state transferring around an exceptional point can be an important ingredient in quantum control. We are at the starting point in controlling non-Hermitian quantum systems."

Another implication of the findings is how two seemingly unrelated mechanisms: non-Hermitian physics (induced by loss) and spin-orbit coupling, interplay. Spin-orbit coupling (SOC) is an essential mechanism behind intriguing quantum phenomena such as topological insulator, which behaves as an insulator in its interior but whose surface flow electrons act like a conductor.

Despite the major advances in non-Hermitian physics, an SOC mechanism is only widely studied in Hermitian systems, much less is known experimentally on the major role played by the loss in spin-orbit-coupled quantum systems. The better understanding of such non-Hermitian SOC is of paramount importance to the development of novel materials, but it remains elusive in the area of condensed matter physics.

In this work however, researchers realized for the first time a dissipative spin-orbit-coupled system for ultracold atoms, fully characterizing its quantum state and demonstrating chiral quantum control in the context of non-Hermitian physics. This finding sets the stage for future exploration of spin-orbit coupling physics in the non-Hermitian regime, and highlights the remarkable capabilities of non-Hermitian quantum systems to realize, characterize, and harness two fundamental mechanisms, namely loss and SOC, providing a new approach for precisely simulating such competing mechanisms in a highly controllable quantum simulator with ultracold atoms.

More information: Jensen Li, Chiral control of quantum states in non-Hermitian spin–orbit-coupled fermions, *Nature Physics* (2022). DOI: 10.1038/s41567-021-01491-x. www.nature.com/articles/s41567-021-01491-x

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