Aug
2021

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खंड : 46 अंक : 165 20 अगस्त 2021

Vol.: 46 Issue : 165 20 August 2021

रक्षा विज्ञान पुस्तकालय
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DRDO develops Advanced Chaff Technology for Indian Air Force

Raksha Mantri Shri Rajnath Singh terms it another step of DRDO towards 'AatmaNirbhar Bharat'

Key highlights:

- ***The technology to safeguard fighter aircraft from hostile radar threats***
- ***Given to the industry for production in large quantities***
- ***Indian Air Force begins process of induction following completion of successful user trials***
- ***Raksha Mantri terms it another step of DRDO towards 'AatmaNirbhar Bharat'***

Defence Research & Development Organisation (DRDO) has developed an Advanced Chaff Technology to safeguard fighter aircraft of the Indian Air Force (IAF) against hostile radar threats. Defence Laboratory Jodhpur, a DRDO laboratory developed the advanced Chaff material and chaff cartridge-118/I in collaboration with High Energy Materials Research Laboratory (HEMRL), a Pune based laboratory of DRDO, meeting qualitative requirements of IAF. The Indian Air Force has started the process of induction of this technology after completion of successful user trials.

In today's electronic warfare, survivability of fighter aircraft is of prime concern because of advancement in modern radar threats. To ensure survivability of aircraft, Counter Measure Dispensing System (CMDS) is used which provides passive jamming against Infra-Red and radar threats. Chaff is a critical defence technology used to protect fighter aircraft from hostile radar threats. The importance of this technology lies in the fact that very less quantity of chaff material deployed in the air acts as decoy to deflect enemy's missiles for ensuring safety of the fighter aircraft. The technology has been given to the industry for production in large quantities to meet the annual rolling requirement of the Indian Air Force.

Raksha Mantri Shri Rajnath Singh has lauded DRDO, IAF and the industry for indigenous development of this critical technology, terming it as one more step of DRDO towards 'AatmaNirbhar Bharat' in strategic defence technologies. Secretary Department of Defence R&D and Chairman DRDO Dr G Satheesh Reddy congratulated the teams associated with the successful development of this advanced technology that will further strengthen the Indian Air Force.
https://pib.gov.in/PressReleasePage.aspx?PRID=1747306

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Thu, 19 Aug 2021 11:46AM

डीआरडीओ ने भारतीय वायु सेना के लिए उन्नत चैफ प्रौद्योगिकी विकसित की

रक्षा मंत्री श्री राजनाथ सिंह ने इसको 'आत्मनिर्भर भारत' की दिशा में डीआरडीओ का एक और कदम बताया

प्रमुख बातें:

- ***यह तकनीक दुश्मन के रडार से पैदा खतरों से लड़ाकू विमानों की रक्षा करेगी***
- ***बड़ी मात्रा में उत्पादन के लिए उद्योग को प्रदान की गई***
- ***भारतीय वायु सेना ने सफल उपयोगकर्ता परीक्षणों के पूरा होने के बाद शामिल करने की प्रक्रिया शुरू की***
- ***रक्षा मंत्री ने 'आत्मनिर्भर भारत' की दिशा में डीआरडीओ का एक और कदम बताया***

रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने दुश्मन के रडार खतरों से निपटने के लिए भारतीय वायु सेना के लड़ाकू विमानों की सुरक्षा के लिए एक उन्नत चैफ प्रौद्योगिकी विकसित की है। जोधपुर स्थित डीआरडीओ की रक्षा प्रयोगशाला ने वायुसेना की गुणात्मक आवश्यकताओं को पूरा करते हुए, डीआरडीओ की पुणे स्थित उच्च ऊर्जा सामग्री अनुसंधान प्रयोगशाला (एचईएमआरएल) के सहयोग से उन्नत चैफ सामग्री और चैफ कार्ट्रिज-118/I से इसको विकसित किया है। भारतीय वायु सेना ने सफल उपयोगकर्ता परीक्षणों के पूरा होने के बाद इस तकनीक को शामिल करने की प्रक्रिया शुरू कर दी है।

आज के इलेक्ट्रॉनिक युद्ध में आधुनिक रडार खतरों में प्रगति के कारण लड़ाकू विमानों की उत्तरजीविता प्रमुख चिंता का विषय है। विमान की उत्तरजीविता सुनिश्चित करने के लिए, काउंटर मेजर डिस्पेंसिंग सिस्टम (सीएमडीएस) का उपयोग किया जाता है जो इंफ्रा-रेड और रडार खतरों के खिलाफ निष्क्रिय जैमिंग

प्रदान करता है। चैफ एक महत्वपूर्ण रक्षा तकनीक है जिसका उपयोग लड़ाकू विमानों को शत्रुतापूर्ण रडार खतरों से बचाने के लिए किया जाता है। इस तकनीक का महत्व इस तथ्य में निहित है कि हवा में तैनात बहुत कम मात्रा में चैफ सामग्री लड़ाकू विमानों की सुरक्षा सुनिश्चित करने के लिए दुश्मन की मिसाइलों को अपने मार्ग से भटकाने के लिए प्रलोभन का काम करती है। भारतीय वायुसेना की वार्षिक रोलिंग आवश्यकता को पूरा करने के लिए बड़ी मात्रा में उत्पादन करने हेतु उद्योग को प्रौद्योगिकी प्रदान की गई है।

रक्षा मंत्री श्री राजनाथ सिंह ने इस महत्वपूर्ण प्रौद्योगिकी के स्वदेशी विकास के लिए डीआरडीओ, वायुसेना और उद्योग की सराहना की है, इसे रणनीतिक रक्षा प्रौद्योगिकियों में 'आत्मनिर्भर भारत' की दिशा में डीआरडीओ का एक और कदम बताया है। रक्षा अनुसंधान एवं विकास विभाग के सचिव और डीआरडीओ के अध्यक्ष डॉ. जी सतीश रेड्डी ने इस उन्नत तकनीक के सफल विकास से जुड़ी टीमों को बधाई दी जो भारतीय वायु सेना को और मजबूत करेगी।

https://pib.gov.in/PressReleasePage.aspx?PRID=1747489

Press Information Bureau
Government of India

రక్షణ మంత్రిత్వ శాఖ

Thu, 19 Aug 2021 11:46AM

భారత వైమానిక దళం కోసం అధునాతన చాఫ్ టెక్నాలజీని అభివృద్ధి చేసిన డిఆర్డీఓ

'ఆత్మ నిర్భర్ భారత్' దిశగా డిఆర్డీఓ మరొక అడుగు అని అభివర్ణించిన రక్షణ మంత్రి శ్రీ రాజ్‌నాథ్ సింగ్.

ప్రధాన అంశాలు:

యుద్ధ విమానాలను శత్రు రాడార్ నుండి రక్షించే సాంకేతికత

పెద్ద పరిమాణంలో ఉత్పత్తి కోసం పరిశ్రమకు బదిలీ

విజయవంతమైన యూజర్ ట్రయల్స్ తర్వాత భారతీయ వైమానిక దళంలో చేర్చడానికి ప్రక్రియ ప్రారంభం

'ఆత్మ నిర్భర్ భారత్' దిశగా డిఆర్డీఓ మరో అడుగు అని రక్షణ మంత్రి పేర్కొన్నారు.

డిఫెన్స్ రీసెర్చ్, డెవలప్‌మెంట్ ఆర్గనైజేషన్ (డిఆర్డీఓ) భారత వైమానిక దళం (ఐఏఎఫ్) యుద్ధ విమానాలను శత్రు రాడార్ ముప్పు నుండి రక్షించడానికి ఒక అధునాతన చాఫ్ టెక్నాలజీని అభివృద్ధి చేసింది. డిఆర్డీఓ లాబొరేటరీ అయిన డిఫెన్స్ లాబొరేటరీ జోధ్‌పూర్ అధునాతన చాఫ్ మెటీరియల్, చాఫ్ క్యాట్రిడ్జ్ -118/I ను డిఆర్డీఓ పూణే ఆధారిత ప్రయోగశాల హై ఎనర్జీ మెటీరియల్స్ రీసెర్చ్ లాబొరేటరీ (హెచ్ఈఎంఆర్ఎల్) కలిసి ఐఏఎఫ్ గుణాత్మక అవసరాలకు అనుగుణంగా అభివృద్ధి చేసింది. విజయవంతమైన యూజర్ ట్రయల్స్ పూర్తయిన తర్వాత ఇండియన్ ఎయిర్ ఫోర్స్ ఈ టెక్నాలజీని ప్రవేశపెట్టే ప్రక్రియను ప్రారంభించింది.

నేటి ఎలక్ట్రానిక్ యుద్ధ పద్ధతిలో, ఆధునిక రాడార్ ముప్పు కారణంగా యుద్ధ విమానాల మనుగడ ప్రధాన ఆందోళన కలిగిస్తుంది. విమానాల మనుగడను నిర్ధారించడానికి, ఇన్‌ఫ్రా-రెడ్, రాడార్ ముప్పునకు వ్యతిరేకంగా

నిష్క్రియాత్మక జామింగ్‌ను అందించే కౌంటర్ మెజర్ డిస్పెన్సింగ్ సిస్టమ్ (సిఎండిఎస్) ఉపయోగించబడుతుంది. చాఫ్ అనేది యుద్ధ విమానాలను శత్రు రాడార్ బెదిరింపుల నుండి రక్షించడానికి ఉపయోగించే ఒక క్లిష్టమైన రక్షణ సాంకేతికత. ఈ సాంకేతికత ప్రాముఖ్యత ఏమిటంటే, గాలిలో మోహరించిన చాఫ్ మెటీరియల్ చాలా తక్కువ పరిమాణంలో యుద్ధ విమానాల భద్రతను నిర్ధారించడానికి శత్రువుల క్షిపణులను తిప్పికొట్టడానికి పని చేస్తుంది. భారత వైమానిక దళం వార్షిక రోలింగ్ అవసరాలను తీర్చడానికి పెద్ద మొత్తంలో ఉత్పత్తి చేయడానికి దీనిని పరిశ్రమకు ఇచ్చారు.

రక్షణ మంత్రి శ్రీ రాజ్‌నాథ్ సింగ్ డిఆర్డీఓ, ఐఏఎఫ్, పరిశ్రమను ఈ క్లిష్టమైన సాంకేతికత స్వదేశీ అభివృద్ధికి ప్రశంసించారు, వ్యూహాత్మక రక్షణ సాంకేతికతలలో 'ఆత్మ నిర్భర్ భారత్' దిశగా డిఆర్డీఓ మరొక ముందడుగుగా పేర్కొన్నారు. భారత వైమానిక దళాన్ని మరింత బలోపేతం చేసే ఈ అధునాతన సాంకేతిక పరిజ్ఞానాన్ని విజయవంతంగా అభివృద్ధి చేయడానికి సహకరించిన బృందాలను రక్షణ శాఖ ఆర్ అండ్ డి, డిఆర్డీఓ ఛైర్మన్ డాక్టర్ జి. సతీష్ రెడ్డి అభినందించారు.

https://pib.gov.in/PressReleasePage.aspx?PRID=1747390

The Indian EXPRESS

Fri, 20 Aug 2021

DRDO develops advanced chaff technology to protect IAF jets from missile attacks

Chaff is an electronic countermeasure technology used by militaries worldwide to protect naval ships, aircraft or other sensitive targets from radar and radio frequency guiding mechanisms of the enemy missile

Pune: Pune and Jodhpur-based facilities of the Defence Research and Development Organisation (DRDO) have jointly developed an advanced chaff technology to safeguard fighter aircraft of the Indian Air Force (IAF) from enemy radar threats.

Meanwhile, the Indian Air Force has begun the process of induction of this technology following the completion of successful user trials. (Photo: PIB)

Defence Laboratory, Jodhpur, and High Energy Materials Research Laboratory (HEMRL), Pune, have developed the chaff cartridge meeting qualitative requirements of IAF, the DRDO said on Thursday. "The Indian Air Force has started the process of induction of this technology after completion of successful user trials," a statement from the Ministry of Defence said.

A chaff is primarily an electronic counter-measure technology used by militaries worldwide to protect high-value targets such as fighter jets or naval ships from radars and radio frequency (RF) guiding mechanisms of the enemy missiles. The chaff deployed in the air reflect as multiple targets for the missile guidance systems, thus misleading the enemy radars or deflecting adversary missiles.

The chaff cartridge (Photo: PIB)

The MoD press statement said, "In today's electronic warfare, survivability of fighter aircraft is of prime concern because of advancement in modern radar threats. To ensure survivability of aircraft, Counter Measure Dispensing System (CMDS) is used which provides passive jamming against infra-red and radar threats. Chaff is a critical defence technology used to protect fighter aircraft from hostile radar threats. The importance of this technology lies in the fact that very less quantity of chaff material deployed in the air acts as decoy to deflect enemy's missiles for ensuring safety of the fighter aircraft. The technology has been given to the industry for production in large quantities to meet the annual rolling requirement of the Indian Air Force."

"Defence Minister Rajnath Singh has lauded DRDO, IAF and the industry for indigenous development of this critical technology, terming it as one more step of DRDO towards 'Atmanirbhar Bharat' in strategic defence technologies. Secretary, Department of Defence R&D and Chairman, DRDO Dr G Satheesh Reddy congratulated the teams associated with the successful development of this advanced technology that will further strengthen the Indian Air Force," it added.

https://indianexpress.com/article/cities/pune/drdo-develops-advanced-chaff-technology-to-protect-iaf-jets-against-radar-threats-7461515/

THE TIMES OF INDIA

Fri, 20 Aug 2021

IAF to equip fighter aircraft with advanced 'decoy' to protect from enemy's missiles

By Sandip Dighe

Pune: At least two fighter aircraft - Jaguar and Mirage of the Indian Air Force (IAF) will soon be equipped with an advanced system to protect from enemy's guided missiles in air.

The new system 'advanced chaff technology' is designed and developed by two Defence Research and Development Organisation (DRDO) laboratories - Pune based High Energy Materials Research Laboratory (HEMRL) and Defence Laboratory Jodhpur (DLJ).

"The Chaff is a crucial component of any fighter aircraft. The primary role of it is to generate radiation as equal as fighter aircraft. This empowers fighter pilot to launch a decoy (in the form of chaff) in air to confuse enemy's guided missile and thereby ensuring protection of the aircraft," said senior IAF officer who didn't wish to be named.

"Currently the IAF is using glass fiber based/ made imported Chaff. The newly developed chaff is aluminum based fiber. It generates more radiation intensity than the existing one. This capability would help fighter pilot to protect the aircraft successfully during the operations," said a senior DRDO scientist, who is involved in the project, on condition of anonymity.

Every fighter aircraft has different places to fit chaff. One aircraft requires about 300 chaff during the active operational role, said the scientist.

Another advantage, the scientist said, "The indigenously developed system would be cost effective. The imported chaff we buy it at high cost for the last few years," he added.

The user and technical trials of the system was carried out at the Gwalior air force station two months ago, said the DRDO sources.

"Team of IAF officers, DRDO and technical agencies have evaluated each aspect of the new technology during these trials. And the technology meets all operational and technical requirements of the force," added the scientist.

"The IAF has started the process of induction of this technology after completion of successful user trials," stated the statement issued by the DRDO headquarter, New Delhi

While the chaff is designed by DLJ, the hardware, ejection system and initiators have been developed by the HEMRL team, said the DRDO sources.

"The DRDO is in the final stage of transferring of technology to Nagpur and Hyderabad based private firms to carry out mass production of chaff. They will take a few months to roll out the first batch of the item. The IAF annual requirement of chaff is around 50,000 items. The cost of one chaff would be in the range of eight to ten thousands," said another DRDO scientist, who is aware of the development.

https://timesofindia.indiatimes.com/india/iaf-to-equip-fighter-aircraft-with-advanced-decoy-to-protect-from-enemys-missiles/articleshow/85464205.cms

Fri, 20 Aug 2021

नई तकनीक से दुश्मनों के मिसाइल को गच्चा देंगे भारतीय लड़ाकू विमान, DRDO ने विकसित की तकनीक

रक्षा अनुसंधान एवं विकास संगठन ने कहा कि दुश्मन के मिसाइल को भटकाने में उपयोगी काफी कम मात्रा में तैनात चाफ सामग्री लड़ाकू विमानों की सुरक्षा सुनिश्चित करती है.

Edited By हुसैन ताबिश

नई दिल्लीः रक्षा अनुसंधान एवं विकास संगठन (डीआरडीओ) ने एक उन्नत तकनीक विकसित की है जिसका इस्तेमाल दुश्मन के रडार निर्देशित मिसाइलों का ध्यान भटकाने में होता है ताकि भारतीय वायु सेना के लड़ाकू विमानों को दुश्मनों की मिसाइल से बचाया जा सके. डीआरडीओ ने जुमेरात को एक बयान जारी कर कहा कि सफल परीक्षण के बाद भारतीय वायुसेना ने इस तकनीक को शामिल करने की प्रक्रिया शुरू कर दी है. बयान में कहा गया है कि डीआरडीओ की दो प्रयोगशालाओं ने ''उन्नत चाफ सामग्री एवं चैफ गोलियां'' बनाई हैं और यह भारतीय वायुसेना की जरूरतों के मुताबिक है. इसने कहा कि दुश्मन के मिसाइल को भटकाने में उपयोगी काफी कम मात्रा में तैनात चाफ सामग्री लड़ाकू विमानों की सुरक्षा सुनिश्चित करती है. आईएएफ की जरूरतों को पूरा करने के लिए काफी मात्रा में इसके उत्पादन के लिए यह तकनीक उद्योग जगत को दी गई है.

Advanced Chaff Technology

क्या है शेफ तकनीक

डीआरडीओ के मुताबिक यह एक इलेक्ट्रॉनिक काउंटरमेजर तकनीक है, जिसका इस्तेमाल दुनिया भर की सेनाएं नौसेना के जहाजों और विमानों की तरह अपनी संपत्ति की रक्षा के लिए करती हैं. यह संपत्ति को रडार और रेडियो फ्रीक्वेंसी से बचाता है. नौसैनिक जहाजों के मामले में हवा में शेफ रॉकेट तैनात किए जाते हैं, जो मिसाइल गाइडेंस टेक्नोलॉजी के लिए कई टारगेट के रूप में काम करती है. शेफ कई छोटे एल्यूमीनियम या जस्ता लेपित फाइबर से बना होता है। इसे प्लेन में कारतूस के रूप में रखा जाएगा.

'आत्मनिर्भर भारत' की दिशा में डीआरडीओ का एक और कदम: रक्षा मंत्री

रक्षा मंत्री राजनाथ सिंह ने इस महत्वपूर्ण तकनीक को विकसित करने के लिए बृहस्पतिवार को डीआरडीओ, भारतीय वायुसेना और उद्योग जगत की प्रशंसा की और इसे 'आत्मनिर्भर भारत' की दिशा में डीआरडीओ का एक और कदम बताया.

https://zeenews.india.com/hindi/zeesalaam/news/drdo-develops-technology-to-safeguard-fighter-aircraft-from-radar-threats-htzs/968867

Press Information Bureau
Government of India

Ministry of Defence

Thu, 19 Aug 2021 3:30PM

Raksha Mantri Shri Rajnath Singh launches Defence India Startup Challenge 5.0

Urges private sector to contribute towards building a self-reliant defence industry; assures all possible support

Key highlights of RM's address:

- ***DISC 5.0 is a reflection of Government's resolve to create a self-reliant defence sector***
- ***The challenge to take innovation, design & development to newer heights***
- ***iDEX playing a crucial role in building a strong military & 'AatmaNirbhar' defence industry***
- ***Government support to private sector in building 'AatmaNirbhar Bharat'***

Raksha Mantri Shri Rajnath Singh launched Defence India Startup Challenge (DISC) 5.0 under Innovations for Defence Excellence - Defence Innovation Organisation (iDEX-DIO) through video conferencing on August 19, 2021. Thirty five Problem Statements – 13 from the Services and 22 from Defence Public Sector Undertakings (DPSUs) – were unveiled under DISC 5.0. These are in areas such as Situational awareness, Augmented Reality, Artificial Intelligence, Aircraft-trainer, Non-lethal devices, 5G network, Under-water domain awareness, Drone SWARMS and Data Capturing. The Problem Statements, designed to ensure military advantage in the foreseeable future, are the highest in any edition, so far.

Lauding the efforts of iDEX-DIO, Shri Rajnath Singh, in his address, termed DISC 5.0 as another step towards independence in the defence sector as the launch comes at a time when the country is celebrating 'Azadi ka Amrit Mahotsav'. Stating that DISC 5.0 is a reflection of Government's resolve of creating an 'AatmaNirbhar' defence sector, he exuded confidence that this challenge will move forward from its earlier editions and take innovation, design & development to newer heights. He shed light on the previous four editions of DISC and said that more than 80 startups, MSMEs and individual innovators have joined as winners in over 40 technological areas. He added that modern and futuristic problem statements launched in DISC 5.0 demonstrate the confidence of young entrepreneurs and innovators in DISC.

The Raksha Mantri underlined the importance of creating a strong, modern & well-equipped military and an equally capable & self-reliant defence industry, given the rapidly changing geo-political and security scenario in the world. To realise this vision, he said, iDEX is playing a crucial role by providing a platform wherein the Government, Services, think tanks, industry, startups and innovators can work together to help the defence & aerospace sectors reach full potential. "Defence India Startup Challenge and Open Challenges provide many opportunities to our youth and entrepreneurs. They give a new direction to defence innovation and capabilities by highlighting the potential of India's science, technology and research", said Shri Rajnath Singh. He added that iDEX4fauji is a similar initiative that gives an opportunity to the service personnel to showcase their talent in these fields.

Sharing his insights on the broad contours of iDEX, the Raksha Mantri stated that the initiative has succeeded in bridging the gap between talent and demand in the country. “iDEX provides a strong foundation of innovation, R&D to the industry. Initiatives like iDEX form a link between our youth, academia, R&D, start-ups and the Armed Forces,” he added.

Shri Rajnath Singh listed out measures taken by Ministry of Defence to promote innovation, such as including iDEX as a procurement avenue under Defence Acquisition Procedure (DAP-2020); earmarking Rs 1,000 crore for domestic procurement through iDEX for financial year 2021-2022 and approving a budget of Rs 498.8 crore for the next five years to support over 300 startups and foster innovation in defence & aerospace sectors.

The Raksha Mantri expressed confidence that iDEX will support five times more start-ups over the next five years as the aim is to accelerate progress, reduce costs and complete procurement in a time bound manner. For this, he said, there is need to adopt the concept of 5 Is (Identify, Incubate, Innovate, Integrate and Indigenise).

Shri Rajnath Singh also referred to a number of initiatives taken by the Government, including steps to increase partnerships with the private sector, technology transfers and restrictions on import of more than 200 items, to promote self-reliance as well as generate employment opportunities. Commending various stakeholders for indigenously developing world-class technologies, he called for identifying and developing new technologies to take forward the vision of ‘Make in India – Make for the World’. He called upon the private sector to come forward and contribute towards building a self-reliant defence sector and assured all possible support of the government.

In his welcome address, Secretary (Defence Production) Shri Raj Kumar termed innovation and self-reliance as the two aspects of iDEX. He said India has the third largest startup ecosystem in the world and these startups are not just wealth creators but employment generators. He added that today the nature of warfare is technology-driven and these startups can play a crucial role in developing indigenous defence capabilities, reducing imports and improving exports.

Chief of Defence Staff General Bipin Rawat, Defence Secretary Dr Ajay Kumar and other senior officials of Ministry of Defence were present at the launch of DISC 5.0. Chief of the Naval Staff Admiral Karambir Singh, Chief of the Air Staff Air Chief Marshal RKS Bhadauria, Chief of the Army Staff General MM Naravane, Chief of Integrated Defence Staff to Chairman Chiefs of Staff Committee Vice Admiral AK Jain; young innovators and representatives of the industry attended the event virtually.

The launch of DISC 5.0 by iDEX-DIO comes three years after the launch of DISC 1.0. The launch of DISC 5.0 is a massive leap towards leveraging the startup ecosystem to develop India’s defence technologies, equipment design and manufacturing capabilities. It will encourage startups to become more attuned to innovative concepts and inculcate the approach of creative thinking in India’s budding entrepreneurs.

The iDEX initiative was launched by Prime Minister Shri Narendra Modi in April 2018 to achieve self-reliance and foster innovation & technology development in defence and aerospace sectors.

https://pib.gov.in/PressReleasePage.aspx?PRID=1747370

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Thu, 19 Aug 2021 3:30PM

रक्षा मंत्री श्री राजनाथ सिंह ने डिफेंस इंडिया स्टार्टअप चैलेंज 5.0 का शुभारंभ किया

निजी क्षेत्र से आत्मनिर्भर रक्षा उद्योग के निर्माण में योगदान देने का आग्रह किया; हर संभव सहयोग का आश्वासन दिया

रक्षा मंत्री के उद्बोधन की प्रमुख बातें:

- ***डीआईएससी 5.0 अपने पैरों पर खड़ा रक्षा क्षेत्र बनाने के सरकार के संकल्प का परिचायक है***
- ***नवाचार, डिजाइन और विकास को नई ऊंचाइयों पर ले जाने की चुनौती***
- ***एक मजबूत सैन्य और 'आत्मनिर्भर' रक्षा उद्योग के निर्माण में आई-डेक्स महत्वपूर्ण भूमिका निभा रहा***
- ***'आत्मनिर्भर भारत' के निर्माण में निजी क्षेत्र को सरकारी सहायता***

रक्षा मंत्री श्री राजनाथ सिंह ने दिनांक 19 अगस्त, 2021 को वीडियो कॉन्फ्रेंसिंग के माध्यम से रक्षा उत्कृष्टता के लिए नवाचार-रक्षा नवाचार संगठन (आई-डेक्स- डीआईओ) के अंतर्गत डिफेंस इंडिया स्टार्टअप चैलेंज (डीआईएससी) 5.0 का शुभारंभ किया। पैंतीस समस्या विवरण-13 सेवाओं से और 22 रक्षा सार्वजनिक क्षेत्र के उपक्रमों (डीपीएसयू) से- का डीआईएससी 5.0 के तहत अनावरण किया गया। ये सिचुएशनल अवेयरनेस, ऑगमेंटेड रियलिटी, आर्टिफिशियल इंटेलिजेंस, एयरक्राफ्ट-ट्रेनर, नॉन-लेथ डिवाइस, 5G नेटवर्क, अंडर-वाटर डोमेन अवेयरनेस, ड्रोन स्वार्म और डेटा कैप्चरिंग जैसे क्षेत्रों में हैं। निकट भविष्य में सैन्य लाभ सुनिश्चित करने के लिए डिज़ाइन किए गए समस्या विवरण अब तक के किसी भी संस्करण में सबसे अधिक हैं।

आई-डेक्स-डीआईओ के प्रयासों की सराहना करते हुए श्री राजनाथ सिंह ने अपने संबोधन में डीआईएससी 5.0 को रक्षा क्षेत्र में स्वतंत्रता की दिशा में एक और कदम बताया, क्योंकि इसका शुभारंभ ऐसे समय में हुआ है जब देश 'आजादी का अमृत महोत्सव' मना रहा है। यह कहते हुए कि डीआईएससी 5.0 एक 'आत्मनिर्भर' रक्षा क्षेत्र बनाने के सरकार के संकल्प का प्रतिबिंब है, उन्होंने विश्वास व्यक्त किया कि यह चुनौती अपने पहले के संस्करणों से आगे बढ़ेगी और नवाचार, डिजाइन और विकास को नई ऊंचाइयों पर ले जाएगी। उन्होंने डीआईएससी के पिछले चार संस्करणों पर प्रकाश डाला और कहा कि 80 से अधिक स्टार्टअप, एमएसएमई और व्यक्तिगत नवप्रवर्तक 40 से अधिक तकनीकी क्षेत्रों में विजेताओं के रूप में शामिल हुए हैं। उन्होंने कहा कि डीआईएससी 5.0 में लॉन्च किए गए आधुनिक और भविष्य के समस्या विवरण डीआईएससी में युवा उद्यमियों और नवप्रवर्तकों के विश्वास को व्यक्त करते हैं।

रक्षा मंत्री ने दुनिया में तेजी से बदलते भू-राजनीतिक और सुरक्षा परिदृश्य को देखते हुए एक मजबूत, आधुनिक और अच्छी तरह से सुसज्जित सेना और समान रूप से सक्षम और आत्मनिर्भर रक्षा उद्योग बनाने के महत्व को रेखांकित किया। इस नज़रिए को साकार करने के लिए उन्होंने कहा कि आई-डेक्स एक ऐसा मंच प्रदान करके एक महत्वपूर्ण भूमिका निभा रहा है जिसमें सरकार, सेवाएं, थिंक टैंक, उद्योग, स्टार्टअप और इनोवेटर्स मिलकर काम कर सकते हैं ताकि रक्षा और एयरोस्पेस क्षेत्रों को अपनी पूरी क्षमता तक पहुंचने में मदद मिल सके।

श्री राजनाथ सिंह ने कहा कि "डिफेंस इंडिया स्टार्टअप चैलेंज और ओपन चैलेंज हमारे युवाओं और उद्यमियों को कई अवसर प्रदान करते हैं। वे भारत के विज्ञान, प्रौद्योगिकी और अनुसंधान की क्षमता को उजागर करके रक्षा नवाचार और क्षमताओं को एक नई दिशा देते हैं।" उन्होंने कहा कि आई-डेक्स4फौजी एक ऐसी ही पहल है जो सेवा कर्मियों को इन क्षेत्रों में अपनी प्रतिभा दिखाने का अवसर प्रदान करती है।

आई-डेक्सकी व्यापक रूपरेखा पर अपनी अंतर्दृष्टि साझा करते हुए रक्षा मंत्री ने कहा कि यह पहल देश में प्रतिभा और मांग के बीच की खाई को पाटने में सफल रही है। उन्होंने कहा कि "आई-डेक्सउद्योगकोनवाचार, R&D का एक मजबूत आधार प्रदान करता है। आई-डेक्स जैसी पहल हमारे युवाओं, शिक्षाविदों, अनुसंधान एवं विकास, स्टार्ट-अप और सशस्त्र बलों के बीच एक कड़ी बनाती है।"

श्री राजनाथ सिंह ने नवाचार को बढ़ावा देने के लिए रक्षा मंत्रालय द्वारा उठाए गए उपायों को सूचीबद्ध किया जैसे कि रक्षा अधिग्रहण प्रक्रिया (डीएपी-2020) के तहत आई-डेक्स को खरीद के रूप में शामिल करना; वित्तीय वर्ष 2021-2022 के लिए आई-डेक्स के माध्यम से घरेलू खरीद के लिए 1,000 करोड़ रुपये और रक्षा और एयरोस्पेस क्षेत्रों में 300 से अधिक स्टार्टअप और नवाचार को बढ़ावा देने के लिए अगले पांच वर्षों के लिए 498.8 करोड़ रुपये के बजट को मंजूरी देना।

रक्षा मंत्री ने विश्वास व्यक्त किया कि आई-डेक्स अगले पांच वर्षों में पांच गुना अधिक स्टार्ट-अप को सहारा देगा क्योंकि इसका उद्देश्य प्रगति में तेजी लाना, लागत कम करना और समयबद्ध तरीके से खरीद को पूरा करना है। उन्होंने कहा कि इसके लिए 5 आई (आइडेंटिफाई, इनक्यूबेट, इनोवेट, इंटीग्रेट और इंडीजेनाइज़) की अवधारणा को अपनाने की जरूरत है।

श्री राजनाथ सिंह ने सरकार द्वारा की गई कई पहलों का भी उल्लेख किया जिसमें निजी क्षेत्र के साथ भागीदारी बढ़ाने के कदम, प्रौद्योगिकी हस्तांतरण और 200 से अधिक वस्तुओं के आयात पर प्रतिबंध, आत्मनिर्भरता को बढ़ावा देने के साथ-साथ रोजगार के अवसर पैदा करना शामिल है। स्वदेशी रूप से विकसित विश्व स्तरीय प्रौद्योगिकियों के लिए विभिन्न हितधारकों की सराहना करते हुए, उन्होंने 'मेक इन इंडिया-मेक फॉर द वर्ल्ड' के दृष्टिकोण को आगे बढ़ाने के लिए नई प्रौद्योगिकियों की पहचान और विकास करने का आह्वान किया। उन्होंने निजी क्षेत्र से आगे आने और आत्मनिर्भर रक्षा क्षेत्र के निर्माण में योगदान देने का आह्वान किया और सरकार के हर संभव समर्थन का आश्वासन दिया।

अपने स्वागत भाषण में सचिव (रक्षा उत्पादन) श्री राज कुमार ने नवाचार और आत्मनिर्भरता को आई-डेक्स के दो पहलू करार दिया। उन्होंने कहा कि भारत में दुनिया का तीसरा सबसे बड़ा स्टार्टअप पारितंत्र है और ये स्टार्टअप न केवल धन निर्माता हैं, बल्कि रोजगार पैदा करने वाले भी हैं। उन्होंने कहा कि आज युद्ध की प्रकृति प्रौद्योगिकी संचालित है और ये स्टार्टअप स्वदेशी रक्षा क्षमताओं को विकसित करने, आयात को कम करने और निर्यात में सुधार करने में महत्वपूर्ण भूमिका निभा सकते हैं।

डीआईएससी 5.0 के शुभारंभ पर चीफ ऑफ डिफेंस स्टाफ जनरल बिपिन रावत, रक्षा सचिव डॉ अजय कुमार और रक्षा मंत्रालय के अन्य वरिष्ठ अधिकारी उपस्थित थे। नौसेना प्रमुख एडमिरल करमबीर सिंह, वायु सेना प्रमुख एयर चीफ मार्शल आर के एस भदौरिया, थल सेनाध्यक्ष जनरल एम एम नरवणे, चीफ ऑफ इंटीग्रेटेड डिफेंस स्टाफ से लेकर चीफ ऑफ स्टाफ कमेटी वाइस एडमिरल ए के जैन; युवा नवप्रवर्तनकर्ताओं और उद्योग के प्रतिनिधियों ने आभासी तरीक़े से इस कार्यक्रम में भाग लिया।

डीआईएससी 5.0 को डीआईएससी 1.0 के लॉन्च के तीन साल बाद आईडेक्स-डीआईओ द्वारा लॉन्च किया गया है। डीआईएससी 5.0 का लॉन्च भारत की रक्षा प्रौद्योगिकियों, उपकरण डिजाइन और विनिर्माण क्षमताओं को विकसित करने के लिए स्टार्टअप पारितंत्र का लाभ उठाने की दिशा में एक बड़ा कदम है। यह

स्टार्टअप्स को नवीन अवधारणाओं के प्रति अधिक अभ्यस्त होने और भारत के नवोदित उद्यमियों में रचनात्मक सोच के दृष्टिकोण को विकसित करने के लिए प्रोत्साहित करेगा।

आई-डेक्स पहल को प्रधानमंत्री श्री नरेन्द्र मोदी द्वारा अप्रैल 2018 में आत्मनिर्भरता प्राप्त करने और रक्षा और एयरोस्पेस क्षेत्रों में नवाचार और प्रौद्योगिकी विकास को बढ़ावा देने के लिए शुरू किया गया था।

https://pib.gov.in/PressReleasePage.aspx?PRID=1747523

Press Information Bureau
Government of India

Ministry of Defence

Thu, 19 Aug 2021 5:26PM

Azadi Ka Amrut Mahotsav: Summit of Mt Manirang By all women mountaineering team

As a part of commemorative activities for 'Azadi Ka Amrut Mahotsav', symbolising 75 years of Independence, Indian Air Force had flagged off an All Women Tri-Services Mountaineering Team on 01 Aug 21 from Air Force Station, New Delhi.

The team successfully summited Mt Manirang (21,625 ft) on 15 August 2021. Mt Manirang is one of the highest peaks of Himachal Pradesh, nestled at the border of Kinnaur & Spiti districts. Close to the peak is the Manirang pass, which was one of the early trade routes between Spiti and Kinnaur, before the motorable road was built.

The 15-member expedition team was led by Wing Commander Bhavana Mehra of the Indian Air Force. The other members of the team who summited the peak and hoisted the national flag atop are Wg Cdr Bhavna Mehra, Lt Col Geetanjali Bhatt, Wg Cdr Nirupama Pandey, Wg Cdr Vyomika Singh, Wg Cdr Lalita Mishra, Maj Usha Kumari, Maj Saumya Shukla, Maj Veenu Mor, Maj Rachana Hooda, Lt Cdr Sino Wilson and Flt Lt Komal Pahuja.

https://pib.gov.in/PressReleasePage.aspx?PRID=1747405

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Thu, 19 Aug 2021 5:26PM

आजादी का अमृत महोत्सव: महिला पर्वतारोहण दल द्वारा माउंट मणिरंग का शिखर सम्मेलन

स्वतंत्रता के 75 साल के प्रतीक 'आजादी के अमृत महोत्सव' के लिए स्मरणीय गतिविधियों के अंतर्गत भारतीय वायु सेना ने दिनांक 01 अगस्त 21 को वायु सेना स्टेशन, नई दिल्ली से एक महिला त्रि-सेवा पर्वतारोहण दल को झंडी दिखाकर रवाना किया।

टीम ने दिनांक 15 अगस्त 2021 को माउंट मणिरंग (21,625 फीट) पर सफलतापूर्वक पर्वतारोहण किया। माउंट मणिरंग हिमाचल प्रदेश की सबसे ऊंची चोटियों में से एक है जो किन्नौर और स्पीति जिलों की सीमा पर स्थित है। चोटी के करीब मणिरंग दर्रा है, जो वाहन चलाने योग्य सड़क बनने से पहले स्पीति और किन्नौर के बीच शुरुआती व्यापार मार्गों में से एक था।

15 सदस्यीय अभियान दल का नेतृत्व भारतीय वायु सेना की विंग कमांडर भावना मेहरा ने किया। टीम के अन्य सदस्य जिन्होंने शिखर पर चढ़कर राष्ट्रीय ध्वज फहराया, वे हैं विंग कमांडर भावना मेहरा, लेफ्टिनेंट कर्नल गीतांजलि भट्ट, विंग कमांडर निरुपमा पांडे, विंग कमांडर व्योमिका सिंह, विंग कमांडर ललिता मिश्रा, मेजर उषा कुमारी, मेजर सौम्या शुक्ला, मेजर वीनू मोर, मेजर रचना हुड्डा, लेफ्टिनेंट कमांडर सिनो विल्सन और फ्लाइट लेफ्टिनेंट कोमल पाहुजा।

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MANOHAR PARRIKAR INSTITUTE FOR DEFENCE STUDIES AND ANALYSES
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Fri, 20 Aug 2021

Public Procurement Framework in India

By Amit Cowshish

The term "public procurement" refers to the procurement of goods, services, and execution of works by the government departments and organisations functioning under their administrative control. There is no specific law governing public procurement in India. A Public Procurement Bill was introduced in the Lok Sabha in May 2012 and referred to the Standing Committee on Finance the same month.[1] But no report was submitted by the committee and the bill lapsed in 2014 with the dissolution of the 15th Lok Sabha.[2]

The 2012 Bill envisaged an overarching framework to regulate the procurement of goods and services costing over Rs 50 lakh by the central ministries, departments, public sector enterprises, and autonomous and statutory bodies.[3] Its objective was to ensure transparency, accountability and probity in the procurement process, fair and equitable treatment of bidders, and promotion of competition, efficiency, economy, integrity, and public confidence in the public procurement process.[4]

The issue resurfaced three years later when, presenting the Union Budget for the Financial Year 2015–16, then Finance Minister Arun Jaitley told the parliament that "Malfeasance in public procurement can perhaps be contained by having a procurement law and an institutional structure consistent with the UNCITRAL model". He added that the parliament needed "to take a view soon on whether we need a procurement law, and if so, what shape it should take".[5] Some reports indicate that the Public Procurement Bill, 2015 was subsequently drawn up, but it is unclear whether this bill was introduced in the parliament. In any case, this law never got enacted.[6]

In the absence of any specific law[7], public procurement and other related financial matters are governed by the General Financial Rules, 2017 (GFR 2017) promulgated by the Ministry of Finance (MoF).[8] These rules are applicable to all central ministries and their attached and subordinate bodies. These are also deemed to be applicable to the autonomous bodies which do not have their own government-approved financial rules.[9]

It is noteworthy that the GFR 2017 is not applicable to the Central Public Sector Enterprises, including the Defence Public Sector Undertakings (DPSUs), which generally follow their own individual rules and procedures, approved by their respective Board of Directors. However, all these are largely inspired by, and conform to, the public procurement principles laid down in the GFR 2017.

The GFR 2017 allows ministries and departments, other than the MoF, also to issue instructions on specific aspects of the public procurement policy. For example, the Public Procurement (Preference to Make in India) Order, 2017[10] was issued by the erstwhile DIPP (now renamed Department for Promotion of Industry and Internal Trade, or DPIIT) under Rule 153 (iii).[11] This Order requires preference to be given to the local companies in the matter of public procurement.

Rule 15 of the 2017 Order directs the administrative ministries to issue instructions to the government companies and other procuring entities under their control which are not governed by the GFR 2017 to comply with the said Order. Accordingly, the Department of Defence Production (DDP) has issued several instructions to give effect to the policy and procedure envisaged in the 2017 Order.[12] These instructions are applicable to all procuring entities under the administrative control of the Ministry of Defence (MoD), including the DPSUs and Ordnance Factory Board

(OFB). As alluded to earlier, the GFR 2017 does not deal exclusively with public procurement. At best only three chapters—3-page Chapter 5 on Works, 17-page Chapter 6 on Procurement of Goods and Services, and 4-page Chapter 8 on Contract Management—can be said to be directly related to procurement.[13] Of these three, Chapter 6 is the most important from the viewpoint of public procurement.

However, the policy and procedure of public procurement set out in Chapter 6, or other chapters, of the GFR 2017 are too general to be of much practical use, especially for managing complex procurements. To overcome this limitation, the procuring departments are permitted by Rule 142 to issue detailed instructions broadly in conformity with the general rules contained in Chapter 6.[14] Under this enabling rule, the MoF has issued three manuals for the guidance of the procuring departments other than those which have issued their own instructions.[15] These manuals are followed by the ministries and departments which do not make large scale, or complex, procurements. Since the GFR 2017 and MoF manuals do not address the complexities of defence procurement, the MoD has promulgated separate manuals under the aforesaid enabling clause in the GFR 2017, though this is not specifically mentioned in all the MoD manuals.[16]

The main, currently applicable, MoD manuals are: (a) the Defence Acquisition Procedure 2020 (DAP 2020) for procurement of capital goods and services, (b) Defence Procurement Manual 2009 (DPM 2009) for revenue procurement, and (c) Defence Works Procedure 2020 (DWP 2020). The first two govern capital and revenue procurement for the armed forces and the Indian Coast Guard, while the DWP 2020 applies to the execution of civil works by the Military Engineer Services.

The OFB, Defence Research and Development Organisation (DRDO), Border Roads Organisation (BRO), and all the nine DPSUs have their own procurement manuals. Besides these manuals, there are some isolated instructions that regulate miscellaneous expenditure, as on acquisition of land.

A question often asked is whether instructions issued by the Central Vigilance Commission (CVC) are applicable in addition to, and supersede, the instructions contained in the above-mentioned manuals. It is difficult to answer this question in yes or no. The ministries and departments are supposed to incorporate all the relevant CVC instructions in their manuals, by customising them, if necessary, to suit their requirement.[17] Therefore, the personnel responsible for procurement need not worry about the CVC instructions issued prior to the promulgation of a particular manual. However, this too is not categorically mentioned in all the manuals.

As for the instructions issued by the CVC after the promulgation of a manual, the position is worrisome. To illustrate, Para 2 (b) of the DAP 2020 provides that in the "event of enactment of new legislation or change or amendment or enforcement of any Act or Law or Policy, rules or regulations or guidelines of MoD or Government of India or body such as Chief Vigilance Commission (CVC), which becomes effective after the date of last amendment to this DAP, the same will automatically be deemed as replacement to the one referred to in this DAP".[18]

This is unfair. The MoD must assume the responsibility of amending the relevant provisions of the manuals which are affected by any instructions issued by the CVC after their promulgation. The procurement personnel cannot be expected to check at every stage if CVC has issued any instruction which has a bearing on the activity they may be carrying out at the given point of time. Moreover, many times, the CVC instructions need to be customised before these can be implemented. [19]

Be that as it may, within the framework of the fundamental principles and rules of public procurement set out in the GFR 2017, the individual ministries, including the MoD, enjoy full freedom to evolve the procedures that address the needs and complexities of procurement carried out by them, as in the case of defence procurement. The question is whether those principles and rules are anachronistic and come in the way of the MoD evolving a more efficient procurement procedure that meets the armed forces' aspirations.

It would be wrong to aver, as many do, that the fundamental architecture of public procurement itself is flawed. It may sound overly simplistic, but the procurement principles and rules are based

on common sense and can be reduced to a few axioms. The problem is that these axioms are not very systematically and clearly enumerated in the GFR 2017. Enactment of the long overdue statute on public procurement can help remove the ambiguities about these axioms and draw the boundaries more clearly within which individual departments could evolve bespoke procedures.

Views expressed are of the author and do not necessarily reflect the views of the Manohar Parrikar IDSA or of the Government of India.

- 1. "The Public Procurement Bill, 2012", Bill No. 58 of 2012, As introduced in Lok Sabha.
- 2. Surabhi, "NDA Set to Revive UPA's Public Procurement Bill", *The Indian Express,* 20 March 2015.
- 3. Ibid.
- 4. The Public Procurement Bill, 2012, Objectives, p. 1.
- 5. "Budget 2015–16", Para 72, Speech of Arun Jaitley, Minister of Finance, 28 February 2015, p. 15.
- 6. Anubhuti Vishnoi, "New Public Procurement Bill by Narendra Modi Government Aims to Help 'Make in India' Goals Work", *The Economic Times*, 16 November 2015.
- 7. Some State governments like Rajasthan and Punjab have enacted analogous laws. Some other countries too have laws governing public procurement.
- 8. These rules were first promulgated in 1947 and revised in 1963, 2005 and 2017.
- 9. "General Financial Rules, 2017", Rule 1, *Department of Expenditure*, Ministry of Finance, Government of India.
- 10. Order No. P-45021/2/2107-B.E.-II, dated 15 June 2017, *Department of Industrial Policy and Promotion*, Ministry of Commerce and Industry, Government of India.
- 11. The said Rule provides that the "Central Government may, by notification, provide for mandatory procurement of any goods or services from any category of bidders, or provide for preference to bidders on the grounds of promotion of locally manufactured goods or locally provided services".
- 12. See Archive Notification, *Department of Defence Production*, Ministry of Defence, Government of India.
- 13. The remaining chapters deal with the General System of Financial Management, Budget Formulation and Implementation, Government Accounts, Inventory Management, Grants-in-aid and Loans, Budgeting and Accounting for Externally Aided Project, Government Guarantees, and miscellaneous subjects like establishment, refund of revenue, debt and miscellaneous obligations of the government, security deposits, transfer of land and buildings, charitable endowments and other trusts, local bodies, maintenance of records, and contingent and miscellaneous expenditure.
- 14. GFR 2017, Chapter 6, Rule 142 reads: "This chapter contains the general rules applicable to all Ministries or Departments, regarding procurement of goods required for use in the public service. Detailed instructions relating to procurement of goods may be issued by the procuring departments broadly in conformity with the general rules contained in this Chapter."
- 15. These Manuals are: "Manual for Procurement of Goods 2017"; "Manual for Procurement of Consultancy and Other Services 2017"; "Manual for Procurement of Works 2019".
- 16. While it is specifically stated in Para 1.1.2 of the DPM 2009 (it refers to Rule 135 of GFR 2005 which corresponds to Rule 142 of GFR 2017), the DAP 2020 and the earlier DPPs (Defence Procurement Procedures) do not mention this.
- 17. See Para 1.5.1 of DPM 2009 and Para 2(b), Chapter I of DAP 2020.
- 18. Ibid.
- 19. Comparison between the provisions in the MoD manuals as regards Pre-Contract Integrity Pact (PCIP) and the CVC instructions on this issue would be instructive.

https://idsa.in/idsacomments/public-procurement-framework-in-india-amitcowsish-190821

TIMESNOWNEWS.COM

Fri, 20 Aug 2021

'Indian Navy expanded it's presence far and wide with aim of protecting India's maritime interest'

Chief of Naval Staff congratulated all the participants & award winners and said their performance is going to motivate and inspire the youngsters to follow their experiences

By Sowmith Yakkati

Hyderabad Sailing Week-2021 concluded with a grand ceremony at Sailing Annexe, Secunderabad Club today. Admiral Karambir Singh, Chief of Naval Staff was the chief guest of the occasion.

The event was jointly hosted by the EME Sailing Association, the Secunderabad Sailing Club, and the Laser Class Association of India.

Lieutenant General TSA Narayanan, Commodore, EME Sailing Association complimented the sailors on high standard of sailing and competitive spirit displayed by all participants. He also thanked the Government of Telangana state, sister organizations, and sponsors for making the event a phenomenal success.

Admiral Karambir Singh, Chief of Naval Staff, was the chief guest of the occasion

Speaking on the occasion, the Chief of Naval Staff congratulated all the participants & award winners and said their performance is going to motivate and inspire the youngsters to follow their experiences.

This national ranking event continues to rise in stature, expanding participation and attract the best talent in the country to provide perfect Launchpad for our budding sailors.

From a humble beginning in 1986, the event has come a long way. The unprecedented level of participation witnessed in this year’s Regatta is testimony to the growing popularity of the sport in the twin cities.

The event has witnessed the total participation of 102 sailors from prominent sailing clubs across the country. The distribution of sailors participating in various categories is as follows:-

Persistent efforts of LCAI in terms of organizing competitions would undoubtedly nurture this young talent and provide a boost to their performance at international sailing regattas. The conducive environment provided by Hyderabad coupled with development of sailing infrastructure at Hussain Sagar would definitely make the sport more popular amongst the local population. The Sailing Championship-2021 would act as a stepping stone for these young sailors to achieve Olympic Glory for the nation in future.

Admiral Karambir Singh, Chief of Naval Staff said that the Indian Navy has been operating across the ocean. They have gone to South China Sea as well as the Pacific and as we speak, our ships are in the United Kingdom protecting our shipments of oil and gas. He also said that the Indian Navy has spread far and wide with an aim to protect India's Maritime interest.

https://www.timesnownews.com/india/article/indian-navy-expanded-its-presence-far-and-wide-with-aim-of-protecting-indias-maritime-interest/801291

ThePrint

Fri, 20 Aug 2021

India inks deal with Russia to immediately procure 70,000 latest AK rifles off the shelf

The assault rifles will replace the 5.56×45 mm INSAS (Indian Small Arms System) rifles in use with the armed forces currently.

By Snehesh Alex Philip

New Delhi: India and Russia Thursday signed a deal for the immediate off-the-shelf procurement of 70,000 latest AK 200 series of assault rifles, ThePrint has learnt.

The development comes even as both countries work on a bigger project to jointly manufacture 6 lakh AK-203 rifles in India, a deal which has been pending since 2018.

An AK-203 rifle | Credits: Rosoboronexport

According to sources in the defence and security establishment, while the initial plan was to directly import 20,000 of the 7.62×39mm AK 203 rifle and jointly manufacture 6.5 lakh of them in India, the delay in joint production meant that more of them had to be bought off the shelf.

The off-the-shelf equipment could include multiple variants of the AK 200 series since the basic difference is the accessories that are fitted to the rifle.

The contract was signed between the Ministry of Defence and Russian representatives, in the presence of officials from Indo-Russia Rifles Pvt Ltd — a rifle-manufacturing firm that will lead the indigenous production of AKs in India, sources told ThePrint. These rifles are expected to begin arriving in the country from November this year.

They will replace the 5.56×45mm INSAS (Indian Small Arms System) rifles that are currently in use with the Army, Navy and the Air Force besides other security forces and will become the mainstay of the armed forces for years to come.

The Indian armed forces also use the American SIG716 rifles, which are chambered for the 7.62×51 mm round and were procured by the Army under a fast-tracked process.

The frontline infantry soldiers will be equipped with the SIG while the rest will use the AK-203.

Next target joint production

Sources noted that work is also underway to begin the indigenous production of 6 lakh AK-203 rifles in India by the Indo-Russia Rifles Pvt. Ltd, a joint venture between the Ordnance Factory Board (OFB), the Kalashnikov Concern (manufacturer of the AK rifles) and Rosoboronexport — the Russian state agency for military exports.

Under the proposed deal, the joint venture has to achieve 100 per cent localised sourcing of materials for the rifle within one-and-half years of beginning the production line.

The deal was first announced in 2018 and Prime Minister Narendra Modi had even inaugurated the production facility at the Korwa Ordnance Factory in Uttar Pradesh's Amethi district in March 2019.

However, the entire project hit a roadblock over price negotiations as the OFB was quoting a higher price than the Russian product actually cost in import.

The higher price was because of the extra hours it will take to manufacture the rifle in India and other issues including Transfer of Technology and the 100 per cent localisation of sources for the product.

The defence ministry had to set up a committee to look into this issue and a resolution was arrived at.

In August last year, sources had said that the deal was finalised and the contract is undergoing legal vetting.

The final contract was expected to be signed during Russian President Vladimir Putin's visit to India in late 2020. However, the visit did not take place because of the Covid-19 pandemic.

The formal contract for the joint production is expected to be inked soon.

https://theprint.in/defence/india-inks-deal-with-russia-to-immediately-procure-70000-latest-ak-rifles-off-the-shelf/718827/

ORF OBSERVER RESEARCH FOUNDATION

Fri, 20 Aug 2021

Keeping an eye on China's expanding nuclear stack

Even if there is contention about the scope and prospective size of Beijing's capabilities, India needs to be watchful

By Harsh V. Pant, Kartik Bommakanti

More evidence emerged recently that the People's Republic of China (PRC) is expanding the size of its nuclear arsenal by building more missile silos. The debate, though, surrounding China's nuclear build-up is mired in considerable dispute. The source of contention is over the scope and prospective size of the PRC's nuclear capabilities. The construction of the nuclear missile silo field in Xinjiang region in western China indicates the PRC is fielding a larger nuclear force based on fixed land-based capabilities. The site is believed to host 110 silos. This development comes against the backdrop of evidence that China had built a site with 120 silos in the arid region of Yumen, in the Gansu province.

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The most likely reason behind the current expansion of China's nuclear arsenal is: increase the survivability of its arsenal against a first strike from their nuclear adversaries, most prominently the United States. Washington, which possesses a larger arsenal, stands at 3,800 warheads, and paired with its growing missile defence capabilities poses a threat to Chinese retaliatory nuclear forces. However, other countries too loom large in China's nuclear expansion such as Russia and India, even if Russia is not an overriding concern presently.

Rate and extent is key

The key question is not so much why or whether the PRC is expanding its arsenal, but rather the rate and extent of the production. Does China want a usable and deployable atomic stockpile running into thousands of warheads, or does Beijing want an arsenal in the middle to high hundreds? Making a precise estimate of the PRC's nuclear strength is not easy. However, Chinese nuclear forces stand at roughly anywhere between 250 to 350 nuclear warheads according to the Stockholm International Peace Research Institute (SIPRI) as well as the Federation of American Scientists (FAS).

Last year, the United States Strategic Command (USTRATCOM) chief Admiral Charles Richard stated that the PRC could double its current operational stockpile which is still in the "low

200s" over the next decade. However, the current silo-based missile expansion being undertaken by the PRC can be misleading, because the PRC's quest might be as much to conceal the number of missiles tipped with nuclear warheads in its possession as it is to disassemble and deceive by building a large number of decoy missile silos.

A first strike strategy

Land-based nuclear capabilities also enable the Chinese to present a nuclear adversary with a larger menu of targets to strike, exhausting a large number of the enemy's missiles in a first strike. Indeed, some of the decoy silos are meant to absorb and exhaust a part of the enemy' first strike nuclear forces. Thus, the larger the target list for any potential opponent, the greater the chances of China's arsenal surviving a first strike thereby boosting the credibility of China's nuclear deterrent. In all probability, the PRC is expanding its nuclear forces if not to match the larger nuclear forces fielded by the Americans and the Russians, but sufficient to withstand a first strike and then execute a retaliatory attack that would defeat U.S. missile defences.

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China's nuclear tipped ballistic missiles forces, whether land-based or sea-based, have certainly improved in quantity and quality. The PRC's Intercontinental Ballistic Missile (ICBM) capabilities and Intermediate Range Ballistic Missile (IRBM) capabilities in the form of the Dongfeng-41 (DF-41) and the DF-26, respectively, are its most potent land-based missile systems. At least 16 launchers of the DF-26 are known to be deployed in the Xinjiang region close to the Sino-Indian border.

In the case of the first, the silos being built in Xinjiang and Gansu could house DF-41 ICBMs that are capable of carrying multiple warheads much like their road mobile counterparts. In addition, the decoy silos can launch conventional armed ballistic missiles, and since they are likely to be interspersed with nuclear-tipped missiles, they create inadvertent escalation risks.

What New Delhi should track

Consequently, the latest development of silos presents a grim and disturbing set of consequences for the world and India. The PRC has refused to enter any tripartite arms control negotiations with Americans and Russians that could forestall the deployment of a more numerically robust nuclear arsenal, and possibly sees its current build-up as a necessity to bridge the nuclear asymmetries it faces *vis-à-vis* Washington and Moscow.

The growth in China's nuclear arsenal might not have an immediate impact on India, but its development of land-based nuclear silos in the Xinjiang province should worry decision-makers and strategic elites in New Delhi given the region's proximity to India. More importantly, it is likely to have an impact on the ongoing boundary stand-off between the two countries in Eastern Ladakh. The issue is not so much actual nuclear use by the PRC against India, but the coercive leverage fixed land-based nuclear capabilities give the Chinese in consolidating their territorial gains in Depsang, Demchok and Gogra-Hotsprings. If anything, it is likely to produce a suppressive effect against any conventional military escalation. The more extreme and adverse outcome for India is that New Delhi is left with no choice but to accept China's *fait accompli*.

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The strategic balance between China and India is unlikely to be altered because of the Chinese nuclear expansion, but New Delhi would be wise to keep a close eye on its neighbour and work on enhancing its own strategic capabilities. Amidst an all-round sharpening of great power contestation, the nuclear issue will continue to challenge policymakers.

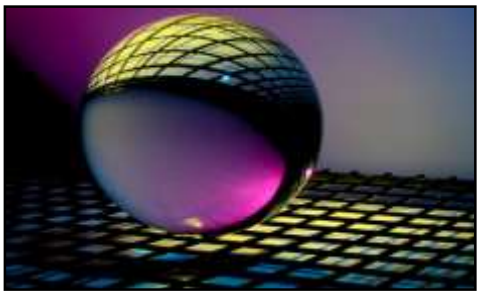
https://www.orfonline.org/research/keeping-an-eye-on-chinas-expanding-nuclear-stack/

Fri, 20 Aug 2021

Partition function zeros are a 'shortcut' to thermodynamic calculations on quantum computers

By Tracey Peake

A study led by researchers at North Carolina State University developed a new method that enables quantum computers to measure the thermodynamic properties of systems by calculating the zeros of the partition function.



Credit: Unsplash/CC0 Public Domain

"We've illustrated a new way to get at thermodynamic properties of a system, such as free energy, entropy, and other properties that are too complex to currently be measured via traditional or quantum computing," says Lex Kemper, associate professor of physics at NC State and corresponding author of a paper describing the work. "By calculating partition function zeros we are on the way to solving the problem of scaling to larger numbers of qubits when trying to calculate free energies and entropies in a given system."

Quantum computers are often used to study complicated systems due to their ability to handle large computations beyond the reach of conventional computers. However, some problems, such as measuring the thermodynamics or free energy in a system (which involves calculating its entropy), are still too big for even these computers to handle efficiently.

A partition function describes the statistical properties of a system in thermodynamic equilibrium. The total energy, free energy, entropy, or pressure of a system can be expressed mathematically in terms of the partition function or its derivatives.

Kemper and his colleagues used a quantum computer to measure the partition function zeros, rather than the entropy, of a spin model as it is tuned across a phase transition.

"Our method skips the part where we calculate the entropy in favor of looking at the partition function," Kemper says. "That's because the partition function is a generating function—a function that you can perform operations on to get at other thermodynamic information such as the internal energy and the entropy.

"We measure the partition function by determining where it is zero. Once you know all the zeros of a function, you know the whole function. Since the zeros lie in the complex plane, we used a mapping between having a complex magnetic field and time evolution to find them."

The researchers calculated the partition function on both a standard and a trapped ion quantum computer in the laboratory of Norbert Linke at the University of Maryland. The results from both compared favorably. "This is a way to use a quantum computer to get at all the thermodynamic properties of a system without necessitating huge numbers of quantum computations," Kemper says. The research appears in *Science Advances*.

More information: Akhil Francis et al, Many-body thermodynamics on quantum computers via partition function zeros, *Science Advances* (2021). DOI: 10.1126/sciadv.abf2447

Journal information: *Science Advances*

https://phys.org/news/2021-08-partition-function-zeros-shortcut-thermodynamic.html

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Fri, 20 Aug 2021

Electron-electron and spin-orbit interactions compete to control the electron

In a finding that will help to identify exotic quantum states, RIKEN physicists have seen strongly competing factors that affect an electron's behavior in a high-quality quantum material.

Electrons have a property called spin, which can be crudely thought of as the rotation of an electron about an axis. As an electron moves, its motion and spin can become linked through an effect known as spin–orbit coupling. This effect is useful because it offers a way to externally control the motion of an electron depending on its spin—a vital ability for an emerging technology called spintronics, which is seeking to use electron spin to realize low-power-consumption information processing.

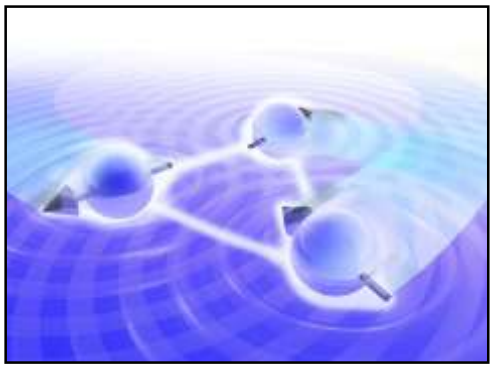

Figure 1: Electron spin is influenced by both the electron's motion, via spin–orbit coupling, and interactions with other electrons, through the Coulomb effect. Credit: Mari Ishida; RIKEN Center for Emergent Matter Science

Spin–orbit coupling is a complex mix of quantum physics and relativity, but it becomes a little easier to understand by envisioning a round soccer ball. "If a soccer player kicks the ball, it flies on a straight trajectory," explains Denis Maryenko of the RIKEN Center for Emergent Matter Science. "But if the player gives the ball some rotation, or spin, its path bends." The ball's trajectory and its spinning motion are connected. If its spinning direction is reversed, the ball's path will bend in the opposite direction.

Unlike soccer balls, electrons also interact with each other: two negatively charged particles will repel each other, for example. This mutual repulsion and the spin–orbit interaction compete with each other: the former can act to align an electron's spin with that of other electrons, whereas the latter tries to align an electron's spin with its motion.

"This interplay has recently attracted a lot of interest, since it could lead to the emergence of novel electronic and spin phases, which may be used in future quantum technologies," says Maryenko. "It is thus important to understand the fundamentals of the interplay." But it is incredibly difficult to identify both effects at the same time.

Now, Maryenko and his colleagues have succeeded in disentangling the two effects.

They looked at electrons trapped between two semiconductors, magnesium zinc oxide and zinc oxide. Since the system had very few atomic impurities, there was a strong interaction between electrons. And the researchers could control the strength of the spin–orbit coupling by varying the magnesium content. "We looked carefully at how the sample resistance changed when we applied a magnetic field," says Maryenko. In this way, they were able to identify signatures of both spin–orbit and the mutual repulsion due to the electrons' charges.

This high-quality material system thus represents a great resource for testing theoretical predictions and it opens a path to develop spintronic phenomena in strong-electron-correlation regimes.

More information: D. Maryenko et al, Interplay of spin–orbit coupling and Coulomb interaction in ZnO-based electron system, *Nature Communications* (2021). DOI: 10.1038/s41467-021-23483-4

Journal information: *Nature Communications*

https://phys.org/news/2021-08-electron-electron-spin-orbit-interactions-electron.html

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Accessing high spins in an artificial atom

Scientists from SANKEN at Osaka University demonstrated the readout of spin-polarized multielectron states composed of three or four electrons on a semiconductor quantum dot. By making use of the spin filtering caused by the quantum Hall effect, the researchers were able to improve upon previous methods that could only easily resolve two electrons. This work may lead to quantum computers based on the multielectron high-spin states.

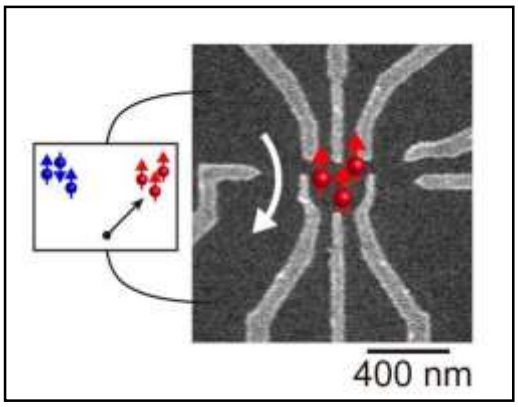

Fig.1 Three-electron high-spin state in a semiconductor quantum dot and its readout. Credit: Osaka University

Despite the almost unimaginable increase in the power of computers over the last 75 years, even the fastest machines available today run on the same basic principle as the original room-sized collection of vacuum tubes: information is still processed by herding electrons through circuits based on their electric charge. However, computer manufacturers are rapidly reaching the limit of how much they can readily achieve with charge alone, and new methods, such as quantum computing, are not ready yet to take their place. One promising approach is to utilize the intrinsic magnetic moment of electrons, called "spin," but controlling and measuring these values has proven to be very challenging.

Now, a team of researchers led by Osaka University showed how to read out the spin state of multiple electrons confined to a tiny quantum dot fabricated from gallium and arsenic. Quantum dots act like artificial atoms with properties that can be tuned by scientists by changing their size or composition. However, the gaps in energy levels generally becomes smaller and harder to resolve as the number of trapped electrons increases.

To overcome this, the team took advantage of a phenomenon called the quantum Hall effect. When electrons are confined to two dimensions and subjected to a strong magnetic field, their states become quantized, so their energy levels can only take on certain specific values. "Previous spin readout methods could only handle one or two electrons, but using the quantum Hall effect, we were able to resolve up to four spin-polarized electrons," first author Haruki Kiyama says. To prevent disturbances from thermal fluctuations, the experiments were performed at extremely low temperatures, around 80 millikelvin. "This readout technique may pave the way toward faster and higher-capacity spin-based quantum information processing devices with multielectron spin states," senior author Akira Oiwa says.

More information: Preparation and readout of multielectron high-spin states in a gate-defined GaAs/AlGaAs quantum dot," *Physical Review Letters*, DOI: doi.org/10.1103/PhysRevLett.127.086802

Journal information: *Physical Review Letters*

https://phys.org/news/2021-08-accessing-high-artificial-atom.html

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UCSD researchers find SARS-CoV-2 gate that opens to allow covid infection

In a study published Thursday, a team led by researchers at UC San Diego have discovered how glycans — molecules that make up a sugary residue around the edges of the spike protein — act as infection gateways for SARS-CoV-2, the virus which causes COVID-19, which may be a key to countering the virus. Since the early days of the COVID pandemic, scientists have aggressively pursued the secrets of the mechanisms that allow the virus to enter and infect healthy human cells.

Early in the pandemic, UCSD's Rommie Amaro, a computational biophysical chemist, helped develop a detailed visualization of the SARS-CoV-2 spike protein that efficiently latches onto our cell receptors.

Published Thursday in the journal "Nature Chemistry," a research study led by Amaro, co-senior author Lillian Chong at the University of Pittsburgh, first author and UCSD graduate student Terra Sztain and co-first author and UCSD postdoctoral scholar Surl-Hee Ahn, describes the discovery of glycan "gates" that open to allow SARS-CoV-2 entry.

"We essentially figured out how the spike actually opens and infects," said Amaro, a professor of chemistry and biochemistry and a senior author of the new study. "We've unlocked an important secret of the spike in how it infects cells. Without this gate, the virus basically is rendered incapable of infection."

Amaro said she believes the research team's gate discovery opens potential avenues for new therapeutics to counter SARS-CoV-2 infection. If glycan gates could be pharmacologically "locked" in the closed position, then the virus is effectively prevented from opening to entry and infection.

The spike's coating of glycans helps deceive the human immune system since it comes across as nothing more than a sugary residue. Previous technologies that imaged these structures depicted glycans in static open or closed positions, which initially didn't draw much interest from scientists. Supercomputing simulations then allowed the researchers to develop dynamic "movies" that revealed glycan gates activating from one position to another, offering an unprecedented piece of the infection story.

"We were actually able to watch the opening and closing," said Amaro. "That's one of the really cool things these simulations give you — the ability to see really detailed movies.

"When you watch them, you realize you're seeing something that we otherwise would have ignored," she continued. "You look at just the closed structure, and then you look at the open structure, and it doesn't look like anything special. It's only because we captured the movie of the whole process that you actually see it doing its thing."

The simulations were first run on "Comet" at the San Diego Supercomputer Center at UCSD and later on "Longhorn" at University of Texas, Austin. Such computing power provided the researchers with atomic-level views of the spike protein receptor binding domain, or RBD, from more than 300 perspectives. The investigations revealed glycan "N343" as the linchpin that pries the RBD from the "down" to "up" position to allow access to the host cell's receptors. The researchers describe the glycan activation as similar to a "molecular crowbar" mechanism.

https://www.kpbs.org/news/2021/aug/19/ucsd-researchers-sars-cov-2-gate-covid-infection/