

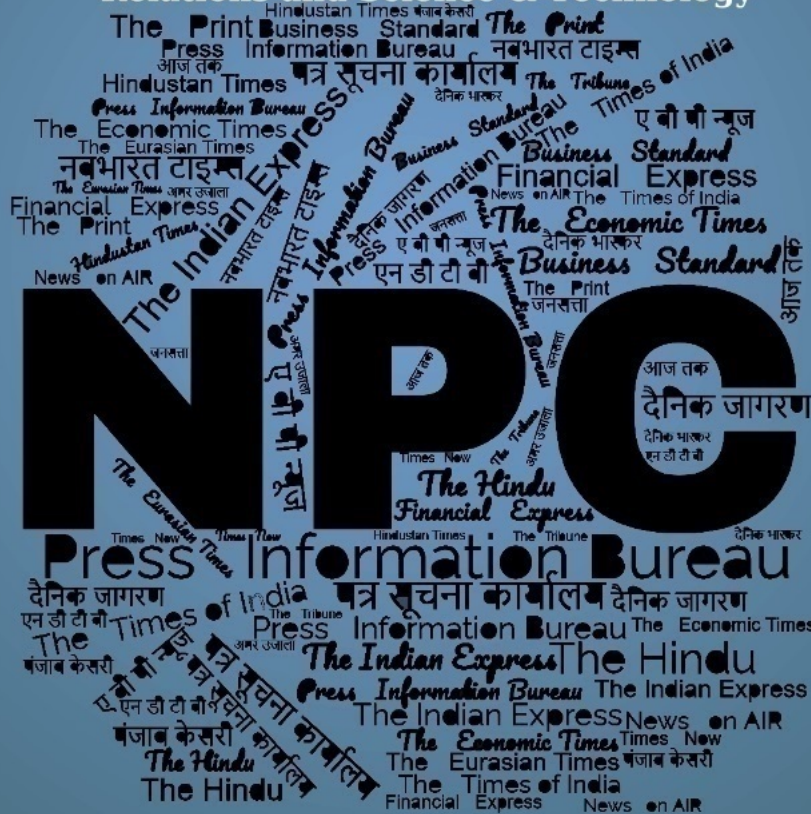
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समाचार पत्रों से चयनित अंश Newspapers Clippings

डीआरडीओ समुदाय को डीआरडीओ प्रौद्योगिकियों, रक्षा प्रौद्योगिकियों, रक्षा नीतियों, अंतर्राष्ट्रीय संबंधों और विज्ञान एवं प्रौद्योगिकी की नूतन जानकारी से अवगत कराने हेतु दैनिक सेवा

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Thu, 20 Jun 2024

India, France, Australia reiterate regional stability, to focus on boosting trilateral cooperation

The Third India-France-Australia Trilateral Focal Points Meeting focused on assessing the progress achieved under the three main pillars of trilateral cooperation: maritime safety and security, marine and environmental cooperation, and multilateral engagement.

The discussions on June 19, 2024 highlighted new proposals aimed at further enhancing trilateral cooperation. These proposals fall under the frameworks of the Indo-Pacific Oceans Initiative (IPOI) and the Indian Ocean Rim Association (IORA) mechanisms. The dialogue also covered cooperation in Humanitarian Assistance and Disaster Relief (HADR) and other multilateral engagements.

The Indian delegation was led by Piyush Srivastava, Joint Secretary (Europe West), and Ms Paramita Tripathi, Joint Secretary (Oceania and Indo-Pacific). Representing France was Benoît Guidée, Director (Asia and Oceania), Ministry of Foreign Affairs, while the Australian side was led by Ms. Sarah Storey, First Assistant Secretary, South and Central Asia Division, Department of Foreign Affairs and Trade.

India, Australia, and France reaffirmed their commitment to advancing shared values and working collaboratively towards a free, open, inclusive, and rules-based Indo-Pacific region. This reaffirmation underscores the nations' dedication to maintaining regional stability and fostering an environment of mutual trust and cooperation.

The trilateral meeting signifies a robust commitment to joint action in the Indo-Pacific region, emphasizing the importance of collaboration in addressing common challenges and advancing mutual interests. Through such engagements, the three nations aim to bolster their strategic partnerships and contribute to regional peace and prosperity.

<https://www.financialexpress.com/business/defence-india-france-australia-reiterate-regional-stability-to-focus-on-boosting-trilateral-cooperation-3529730/>

Thu, 20 Jun 2024

Empowering Women's Tactical Protection: Indian company MKU sets new standards at Eurosatory 2024

An Indian leader in defence innovation, MKU Limited, is making waves at Eurosatory 2024 with its pioneering range of female body armour. As 189 countries now integrate women into their militaries, and 13 nations feature female Ministers of Defence as of 2023, the demand for tailored protective gear has surged.

The company is meeting this demand head-on with a product line designed to provide unmatched protection, comfort, and efficiency for women in the armed forces and law enforcement.

Countries like Chile and Australia have significantly bolstered their female naval personnel, while Canada and Brazil have successfully deployed women in elite special operations units. Nations such as Norway and Sweden, with their inclusive conscription policies, showcase balanced gender representation in their armed forces.

This global shift underscores the growing acceptance of women in defence roles, highlighting the critical need for specialized equipment tailored to their unique anatomical requirements.

Why Female Body Armour Stands Out ?

Traditional body armour often fails to meet the specific needs of female personnel, resulting in discomfort, restricted movement, and inadequate protection.

The Kanpur based company's innovative range of ballistic vests, plate carriers, and lightweight armour inserts addresses these challenges comprehensively, offering NIJ Level IIA to NIJ Level IV protection. Central to this innovation is the Radial Design Technique, which contours the armour to fit the female form perfectly, ensuring a snug fit that enhances mobility and comfort.

Key Benefits:

– **Ergonomic Fit:** Designed to fit the unique contours of a woman's body, providing better weight distribution and minimizing discomfort during prolonged use.

Enhanced Mobility: The tailored fit allows for a greater range of motion, essential for dynamic and unpredictable tactical operations.

– **Breathable Materials:** Smart materials ensure durability and breathability, even in harsh conditions.

– **Lightweight and Flexible:** Reduces fatigue and allows for agile movements without compromising protection.

“We are incredibly proud to showcase our range of female body armour at Eurosatory 2024,” Neeraj Gupta, Managing Director of MKU told Financial Express Online on the sidelines of the ongoing Eurosatory in Paris.

“This represents a significant step forward in our mission to empower women in uniform. By addressing their specific needs, we are not only enhancing their safety and comfort but also reinforcing their vital role in defence and law enforcement,” Gupta adds.

“Our commitment is to ensure that every woman who wears our armour can face her duties with unmatched confidence and resilience.”

<https://www.financialexpress.com/business/defence-empowering-womens-tactical-protection-indian-company-mku-sets-new-standards-at-eurosatory-2024-3530115/>

नवभारत टाइम्स

Thu, 20 Jun 2024

पाकिस्तान के परमाणु बम खतरे में, पीओके में घुसी भारतीय सेना तो कर सकता है एटमी हमला, विशेषज्ञ ने दी चेतावनी

पाकिस्तान दुनिया का पहला ऐसा मुस्लिम राष्ट्र है जिसने साल 1998 में परमाणु बम का परीक्षण करके दुनिया को चौंका दिया था।

पाकिस्तान ने तब से लेकर अब तक 170 परमाणु बम बना लिए हैं। ऐसा पहली बार हुआ है कि भारत ने साल 2023 में पाकिस्तान को परमाणु बमों की संख्या के मामले में छोड़ दिया है। स्टॉकहोम की संस्था सिप्री की ताजा रिपोर्ट के मुताबिक भारत के पास 172 परमाणु बम हो गए हैं।

पाकिस्तान अपने परमाणु बमों को इस्लामिक परमाणु बम करार देता है लेकिन विशेषज्ञ मुस्लिम कट्टरपंथियों को ही पाकिस्तानी एटम बम के लिए सबसे बड़ा खतरा मानते हैं। उनका कहना है कि आतंकी परमाणु ठिकाने पर कब्जा कर सकते हैं और इसमें पाकिस्तान का ही कोई अफसर मदद कर सकता है।

भारतीय सेना में पूर्व कर्नल और सैटलाइट तस्वीरों के विशेषज्ञ विनायक भट्ट ने ट्वीट करके पाकिस्तानी परमाणु बमों को लेकर कई अपडेट दिए हैं। कर्नल भट्ट ने कहा कि पाकिस्तान की परमाणु नीति हमेशा से ही परमाणु बमों के पहले इस्तेमाल की रही है।

वहीं भारत नो फर्स्ट यूज की नीति में भरोसा करता है। हाल में पाकिस्तानी सेना के एक वरिष्ठ अधिकारी ने भी खुलकर कहा था कि हमारी कोई नो फर्स्ट यूज नीति नहीं है।

पाकिस्तानी परमाणु वैज्ञानिक, रणनीतिकार और वरिष्ठ सैन्य अधिकारी हमेशा से ही कहते रहे हैं कि पाकिस्तान पहले टैक्टिकल न्यूक्लियर वेपन का इस्तेमाल करेगा, अगर भारतीय सेना पीओके में घुसती है।

<https://navbharattimes.indiatimes.com/world/pakistan/pakistan-nuclear-weapons-news-pakistan-nuclear-bomb-in-danger-may-attack-on-indian-army-in-pok-expert-warn/articleshow/111138232.cms>

US and China hold first informal nuclear talks in 5 years, eyeing Taiwan

The United States and China resumed semi-official nuclear arms talks in March for the first time in five years, with Beijing's representatives telling U.S. counterparts that they would not resort to atomic threats over Taiwan, according to two American delegates who attended.

The Chinese representatives offered reassurances after their U.S. interlocutors raised concerns that China might use, or threaten to use, nuclear weapons if it faced defeat in a conflict over Taiwan. Beijing views the democratically governed island as its territory, a claim rejected by the government in Taipei.

"They told the U.S. side that they were absolutely convinced that they are able to prevail in a conventional fight over Taiwan without using nuclear weapons," said scholar David Santoro, the U.S. organiser of the Track Two talks, the details of which are being reported by Reuters for the first time.

Participants in Track Two talks are generally former officials and academics who can speak with authority on their government's position, even if they are not directly involved with setting it.

Government-to-government negotiations are known as Track One. Washington was represented by about half a dozen delegates, including former officials and scholars at the two-day discussions, which took place in a Shanghai hotel conference room.

Beijing sent a delegation of scholars and analysts, which included several former People's Liberation Army officers. A State Department spokesperson said in response to Reuters' questions that Track Two talks could be "beneficial".

The department did not participate in the March meeting though it was aware of it, the spokesperson said. Such discussions cannot replace formal negotiations "that require participants to speak authoritatively on issues that are often highly compartmentalized within (Chinese) government circles," the spokesperson said. Members of the Chinese delegation and Beijing's defence ministry did not respond to requests for comment.

The informal discussions between the nuclear-armed powers took place with the U.S. and China at odds over major economic and geopolitical issues, with leaders in Washington and Beijing accusing each other of dealing in bad faith.

The two countries briefly resumed Track One talks over nuclear arms in November but those negotiations have since stalled, with a top U.S. official publicly expressing frustration at China's responsiveness. The Pentagon, which estimates that Beijing's nuclear arsenal increased by more than 20% between 2021 and 2023, said in October that China "would also consider nuclear use to restore deterrence if a conventional military defeat in Taiwan" threatened CCP rule.

China has never renounced the use of force to bring Taiwan under its control and has over the past four years stepped up military activity around the island. The Track Two talks are part of a two-decade nuclear weapons and posture dialogue that stalled after the Trump administration pulled funding in 2019.

After the COVID-19 pandemic, semi-official discussions resumed on broader security and energy issues, but only the Shanghai meeting dealt in detail with nuclear weapons and posture. Santoro, who runs the Hawaii-based Pacific Forum think-tank, described "frustrations" on both sides during the latest discussions but said the two delegations saw reason to continue talking.

More discussions were being planned in 2025, he said. Nuclear policy analyst William Alberque of the Henry Stimson Centre thinktank, who was not involved in the March discussions, said the Track Two negotiations were useful at a time of glacial U.S.-Chinese relations. "It's important to continue talking with China with absolutely no expectations," he said, when nuclear arms are at issue.

NO FIRST-USE?

The U.S. Department of Defense estimated last year that Beijing has 500 operational nuclear warheads and will probably field more than 1,000 by 2030. That compares to 1,770 and 1,710 operational warheads deployed by the U.S. and Russia respectively.

The Pentagon said that by 2030, much of Beijing's weapons will likely be held at higher readiness levels. Since 2020, China has also modernised its arsenal, starting production of its next-generation ballistic missile submarine, testing hypersonic glide vehicle warheads and conducting regular nuclear-armed sea patrols. Weapons on land, in the air and at sea give China the "nuclear triad" - a hallmark of a major nuclear power.

A key point the U.S. side wanted to discuss, according to Santoro, was whether China still stood by its no-first-use and minimal deterrence policies, which date from the creation of its first nuclear bomb in the early 1960s. Minimal deterrence refers to having just enough atomic weapons to dissuade adversaries. China is also one of two nuclear powers - the other being India - to have pledged not to initiate a nuclear exchange.

Chinese military analysts have speculated that the no-first-use policy is conditional - and that nuclear arms could be used against Taiwan's allies - but it remains Beijing's stated stance. Santoro said the Chinese delegates told U.S. representatives that Beijing maintained these policies and that "we are not interested in reaching nuclear parity with you, let alone superiority."

"Nothing has changed, business as usual, you guys are exaggerating'," Santoro said in summarising Beijing's position. His description of the discussions was corroborated by fellow U.S. delegate Lyle Morris, a security scholar at the Asia Society Policy Institute. A report on the discussions is being prepared for U.S. government but would not be made public, Santoro said.

'RISK AND OPACITY'

Top U.S. arms control official Bonnie Jenkins told Congress in May that China had not responded to nuclear-weapons risk reduction proposals that Washington raised during last year's formal talks.

China has yet to agree to further government-to-government meetings. Beijing's "refusal to substantively engage" in discussions over its nuclear buildup raises questions around its "already ambiguous stated "no-first-use" policy and its nuclear doctrine more broadly," the State Department spokesperson told Reuters.

China's Track Two delegation did not discuss specifics about Beijing's modernisation effort, Santoro and Morris said. Alberque of the Henry Stimson Centre said that China relied heavily on "risk and opacity" to mitigate U.S. nuclear superiority and there was "no imperative" for Beijing to have constructive discussions.

China's expanded arsenal - which includes anti-ship cruise missiles, bombers, intercontinental ballistic missiles and submarines - exceeded the needs of a state with a minimal deterrence and no-first-use policy, Alberque said. Chinese talking points revolved around the "survivability" of Beijing's nuclear weapons if it suffered a first strike, said Morris.

The U.S. delegates said the Chinese described their efforts as a deterrencebased modernisation programme to cope with developments such as improved U.S. missile defences, better surveillance capabilities, and strengthened alliances. The U.S., Britain and Australia last year signed a deal to share nuclear submarine technology and develop a new class of boats, while Washington is now working with Seoul to coordinate responses to a potential atomic attack.

Washington's policy on nuclear weapons includes the possibility of using them if deterrence fails, though the Pentagon says it would only consider that in extreme circumstances. It did not provide specifics. One Chinese delegate "pointed to studies that said Chinese nuclear weapons were still vulnerable to U.S. strikes - their second-strike capability was not enough", said Morris.

<https://economictimes.indiatimes.com/news/defence/us-and-china-hold-first-informal-nuclear-talks-in-5-years-eyeing-taiwan/articleshow/111154318.cms>

THE ECONOMIC TIMES

Fri, 21 Jun 2024

Ukraine can hit Russian forces 'anywhere' using US-supplied arms

In a shift in stance, the United States has told Ukraine that it can use American-supplied weapons to hit Russian forces "anywhere". They can hit any Russian forces attacking from across the border, and not just the region near Kharkiv, Politico reported, citing US officials.

This subtle shift, which according to the officials is not a change in policy, comes weeks after the US quietly signaled the green light to Kyiv to strike inside Russia in retaliation to a cross-border

assault on the city of Kharkiv. During that time, the US officials stressed that the policy was limited to the Kharkiv region, among other restrictions.

Since then, the Ukrainian forces have used American weapons to strike into Russia at least once, destroying targets in the city of Belgorod, and managing to hold back the Russian assault. On the other hand, Ukraine and other European officials have asked the US to loosen its restrictions, allowing Ukraine to strike anywhere inside Russia.

Earlier on Tuesday, US National Security Adviser Jake Sullivan told PBS that the agreement with Ukraine about firing American weapons into Russia extends to "anywhere that Russian forces are coming across the border from the Russian side to the Ukrainian side to try to take additional Ukrainian territory," as reported by Politico. Recently, Russia has indicated that it might soon move to the northeastern city of Sumy, which is also near the Russian border. In that case, the policy would apply there as well, Sullivan added.

The US NSA emphasized that this is not about geography. It's about 'common sense', adding that, "If Russia is attacking or about to attack from its territory into Ukraine, it only makes sense to allow Ukraine to hit back against the forces that are hitting it from across the border."

Two American officials, who were granted anonymity to speak candidly about the discussions, said that allowing Ukraine to hit inside Russia in response to counterfire from anywhere across the border is not a shift in policy since the Kharkiv decision was made, Politico reported.

Originally, the move was characterized only in the context of the ongoing Kharkiv assault, but that did not exclude the possibility of hitting back against other cross-border attacks, one of the officials said. However, Sullivan's language is quite different from what US officials said in May when the new policy was detailed.

"The president recently directed his team to ensure that Ukraine is able to use US weapons for counter-fire purposes in Kharkiv so Ukraine can hit back at Russian forces hitting them or preparing to hit them," Sullivan said. The policy of not allowing long-range strikes inside Russia "has not changed," the official stressed.

<https://economictimes.indiatimes.com/news/defence/ukraine-can-hit-russian-forces-anywhere-using-us-supplied-arms/articleshow/111154645.cms>



Thu, 20 Jun 2024

North Korea, Russia sign mutual defence pact; immediately to help if either one attacked

North Korea and Russia agreed to provide immediate military assistance if either faced armed aggression, under a pact their leaders signed during Russian President Vladimir Putin's first visit in 24 years.

The pledge is seen as the revival of a mutual defence agreement under a 1961 treaty adopted by the Cold War allies that was annulled in 1990 when the Soviet Union established diplomatic ties with South Korea. The agreement for a "comprehensive strategic partnership" signed by Russian President Vladimir Putin and North Korean leader Kim Jong Un on Wednesday is one of the highest-profile moves in Asia by Moscow in years.

"If either side faces an armed invasion and is in a state of war, the other side will immediately use all available means to provide military and other assistance in accordance with Article 51 of the U.N. Charter and the laws of each country," Article 4 of the agreement says.

Article 51 of the U.N. Charter provides for the right of a member country to take individual or collective self-defence actions. The pledge by the leaders of the two countries, which are facing increasing international isolation, comes amid growing concern among the United States and its Asian allies over how much Russia would support North Korea, the only country to have tested a nuclear weapon this century.

Kim echoed Putin's statement explicitly linking their deepening ties to fighting the "hegemonic and imperialist" policies of the West and the United State in particular, including its support for Ukraine. The agreement also said neither side would sign any treaty with a third country that infringes on the interests of the other and will not allow its territory to be used by any country to harm the other's security and sovereignty, KCNA said.

The two countries will take joint actions aimed at "strengthening defence capabilities to prevent war and ensure regional and international peace and security", it said. South Korea and the White House did not immediately have comment on the reported content of the agreement.

Japan expressed "grave concerns" about Putin's vow not to rule out cooperation with Pyongyang on military technology. The reaction from China, the North's main political and economic benefactor, has been muted.

Washington and Seoul have been increasingly alarmed by deepening military cooperation between Russia and the North, and have accused the two of violating international laws by trading in arms for use in Moscow's war against Ukraine. Ukrainian officials have said they have found North Korean missile debris inside their country.

Ukrainian presidential aide Mykhailo Podolyak said Russia, a U.N. Security Council permanent member, has allowed "the most brazen nullification" of all sanctions imposed on North Korea to stop its weapons development. NATO Secretary General Jens Stoltenberg said the pact showed authoritarian powers are aligning.

On his first visit to Pyongyang since 2000, Putin thanked Kim for the support for Russian policy, and Kim reaffirmed "unconditional" and unwavering support for "all of Russia's policies" including Putin's war with Ukraine.

KCNA on Thursday released the full text of the agreement, which also included cooperation on nuclear energy, space exploration, food and energy security. Cha Du Hyeogn, a former South Korean government official who is now a fellow at Asan Institute for Policy Studies in Seoul, said the mutual defence pledge is similar to the one in the 1961 treaty between the North and the Soviet Union.

But the reference to the U.N. Charter and each country's laws is open for interpretation and it was not clear whether the agreement would constitute an alliance, he said. "It comes from Kim wanting to put everything in for this agreement, while Putin is being reluctant to do so," Cha said.

<https://www.hindustantimes.com/world-news/north-korea-russia-sign-mutual-defence-pact-immediately-to-help-if-either-one-attacked-101718864433105.html>

Science & Technology News



Press Information Bureau
Government of India

Ministry of Science & Technology

Thu, 20 Jun 2024

Scientists provide groundbreaking insights into new class of materials for energy harvesting and power generation

New study unravels the electronic mechanisms governing chemical bonding of new class of materials called incipient metals with metavalent bonding (MVB) within a single 2D layer of Group IV chalcogenides that can boost energy harvesting and power generation. Sourcing new materials with unique properties can help in the advancement of current technology. Recently, scientists are turning to a class of compounds called group IV chalcogenides that have intriguing properties, making them suitable candidates for technological applications. These compounds contain an element from group VI of the periodic table combined with an element from group III–V of the periodic table, like PbTe, SnTe, and GeTe.

Chalcogenides can transition reversibly between amorphous and crystalline phases in response to changes in temperature, pressure, or electrical fields. This unique characteristic has practical applications in rewritable optical discs and electronic memory devices due to the contrasting optical responses of the two phases. Additionally, these chalcogenides are valuable in energy harvesting and power generation applications, thanks to their high electrical conductivity and effective conversion of thermal energy into electrical energy through the thermoelectric effect.

A recent study by Professor Umesh Waghmare from Theoretical Sciences Unit at Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR) Bengaluru (an autonomous institution under the Department of Science & Technology, Govt. of India) explored the possibility of introducing the recently introduced metavalent bonding (MVB) within a single 2D layer of Group IV chalcogenides, investigating its mechanisms and the resulting consequences on material properties. The study, published in *Angewandte Chemie International Edition* and supported by J. C. Bose National Fellowship of the SERB-DST, Government of India, and JNCASR research fellowship, provides a first-principle theoretical analysis focusing on the bonding nature within five different 2D lattices of Group IV chalcogenides.

This category includes compounds which exhibit remarkable properties, transitioning reversibly from a glassy amorphous structure to a crystalline form in less than 100 nanoseconds when subjected to heating or cooling. Driven by an idea presented by Professor C. N. R. Rao, the study aimed to unravel the electronic mechanisms governing the chemical bonding in these materials. The findings, which took nearly two years of theoretical and computational work, have shed light on the unique properties of these materials, challenging conventional chemical bonding ideas.

Prof. Waghmare says, "These materials, termed incipient metals, possess a combination of properties that defy conventional understanding. They exhibit electrical conductivity akin to metals, high thermoelectric efficiency characteristic of semiconductors, and unusually low thermal conductivity, creating a triad of properties that cannot be explained by traditional chemical bonding concepts." The groundbreaking aspect of this research lies in the elucidation of a new type of chemical bonding proposed by Matthias Wuttig in 2018—metavalent bonding. This innovative bonding concept combines features of both metallic and covalent bonding, offering a fresh perspective on the enigmatic behavior of these materials.

The theoretical work conducted by Prof. Waghmare and his team has significant implications and promising applications across industries. The chalcogenides explored in this study are already employed in computer flash memories, utilizing their ability to change optical properties during the transition from crystalline to amorphous states. Additionally, the potential use of these materials in energy storage, especially as phase change materials, opens avenues for more sustainable and efficient energy solutions.

Furthermore, the research connects with the emerging field of quantum materials, aligning with the goals of India's national mission on quantum technology. These materials, with their distinct electronic structures and properties, offer a prototypical example of quantum topological materials, a critical component in advancing quantum technologies. This research, published in two papers—one focusing on three-dimensional materials and another on metavalent bonding in two-dimensional materials—represents a significant leap forward in understanding the chemistry of quantum materials. Prof. Waghmare emphasizes the importance of these findings, stating, "Normal chemical bonding doesn't explain the unique nature of these materials. We've uncovered the chemistry of quantum materials that opens new avenues for exploration."

<https://pib.gov.in/PressReleasePage.aspx?PRID=2027008>



Thu, 20 Jun 2024

IIIT-Delhi project on antimicrobial resistance wins joint second prize in global competition

A project by the Indraprastha Institute of Information Technology, Delhi (IIIT-Delhi), has won the joint second prize in Trinity Challenge's second competition, on tackling the escalating threat of antimicrobial resistance (AMR), a press release said.

The Trinity Challenge is a charity supporting the creation of data-driven solutions to help protect against global health threats. The project, 'AMRSense: Empowering Communities with a Proactive One Health Ecosystem,' was led by Tavpritesh Sethi of IIIT-Delhi in collaboration with CHRI-PATH, 1mg.com, and the Indian Council of Medical Research (ICMR).

AMRSense addresses the challenges of engaging, motivating, and training community health workers (CHWs) in AMR surveillance and management, compounded by the lack of a comprehensive data ecosystem and analytics capabilities, the release said.

Four components

In India, where over 9,00,000 ASHA workers face limited awareness, insufficient training, and low motivation, there is a significant gap in community-level AMR data collection and evidence-based management.

AMRSense tackles these issues through four major components: community engagement by empowering CHWs with AI-assisted data recording tools for accurate and simplified data collection; data integration by creating a unified AMR data ecosystem through the integration of antibiotic sales, consumption, and WHONet-compliant surveillance data using opensource tools and APIs; predictive analytics by using federated analytics across the OneHealth ecosystem for integrative insights on AMR; and the AMRaura Scorecard for monitoring and evaluating AMR trends to guide targeted interventions and demonstrate the benefits of data collection.

The IIIT-Delhi project shared the second prize with another project, also from India, titled 'OASIS: OneHealth Antimicrobial Stewardship for Informal Health Systems.' Each joint second prize winner will receive £6,00,000 in funding over the next three years. All winners will also benefit from ongoing post-award innovation and scaling support, the release said.

<https://www.thehindu.com/news/national/iiit-delhi-project-on-antimicrobial-resistance-wins-joint-second-prize-in-global-competition/article68311657.ece>

