

Joint meeting on enclaves tomorrow

STAR REPORT

Bangladesh-India joint working committee on the implementation of enclave exchange will sit in Dhaka tomorrow to discuss different issues of the dwellers there.

The meeting takes place after the end of a 10-day joint survey in 162 enclaves of the two countries.

Additional Secretary Abu Hena Md Rahmatul Munneem of the home ministry, who would attend the meeting, said, "Enclave dwellers who want to travel to India may need travel documents or passports. Besides, there are issues relating to the citizenships of those who are staying back in Bangladesh. The meeting will discuss that too."

On July 31, the enclaves will officially be exchanged between India and Bangladesh and the residents who choose to move have to do so by November 30, as per the roadmap drawn up by the two countries.

A total of 979 enclave dwellers who have enlisted their names to move to India from Bangladesh territory will be able to travel to India from August 1 to

November 30.

So far, 979 enclave dwellers have enlisted their names to go to India while none from the Indian territory is coming to Bangladesh, according to officials.

According to the 2011 census, 14,215 people live in the 51 Bangladeshi enclaves in India while 37,369 people stay in the 111 Indian enclaves inside Bangladesh.

Our Kolkata correspondent quoting P Unagathan, district administrator of Cooch Behar, reported that survey to determine enclave land ownership would be launched soon.

Our New Delhi correspondent reports that officials of Bangladesh and India who are carrying out implementation of the enclave exchange are going to face enormous challenges regarding missing records of land ownership in the 162 enclaves.

Our Kolkata correspondent quoting Dipitman Sengupta, a member of the enclave exchange coordination committee, added that all the enclave people would torch 68 candles at the yard of their houses on July 31 midnight to celebrate their "independence".

Don't know who is trying to split BNP

Says Ashraf

STAFF CORRESPONDENT

Refuting the BNP chairperson's allegation that the government plans to split her party, Awami League General Secretary Syed Ashraf Islam said the government wants all political parties to be in a democratic environment.

"I don't know who are trying to split the BNP and I have no news in this regard. We want all political parties to do politics in a democratic atmosphere," he said.

Ashraf, also the public administration minister, was briefing reporters at the AL chief Sheikh Hasina's Dhamondi office yesterday after a joint meeting of the party leaders.

Responding to a query, the AL leader said, "Prime Minister Sheikh

Hasina does not do politics with the administration."

The administration is being run properly and it will continue in future too, he said.

"When I take oath as a minister then I am not a party activist... I am then a minister of the government. When I do party work, I do it for the party. I don't see any conflict between the two. I hope the administration will become more dynamic in the future," the newly appointed minister said.

About the Election Commission's letter on the cancellation of the post of Syed Latif Siddique as an MP, the AL spokesperson admitted that he had received the letter, and said they would clear their stance to the commission following the party constitution.

PM won

FROM PAGE 1

Party workers were not vocal with their unhappiness. The pervasive political culture allows party leaders little space to criticise the party chief's decision regardless of being right or wrong.

But in private conversations with journalists, some AL leaders spoke out. The media have run reports of it in most cases without revealing the identities of the leaders.

Outside her party her decision was criticised in news and social media as well.

Amid such repercussions, Hasina acted quickly. She talked with Ashraf several times to convince him not to fly to London during the Eid vacation. The news of his planned departure for London might have fuelled speculation that he might not return like Sohel Taj, who has been living in the US since quitting his post as state minister of home affairs in May 2009.

Hasina first successfully convinced Ashraf to postpone his trip to London and later she also convinced the AL general secretary to take the public administration portfolio.

The unforeseen development seems to have made her change the original decision. It is a good sign that she showed flexibility and handled a sensitive situation with deft touches to mollify Syed Ashraf.

There is no doubt that changing her decision has benefited her. It has also pacified the growing unease inside the party.

The way Hasina changed her decision is a rare example in the contemporary power politics of Bangladesh.

The story however leaves some important points to ponder.

The situation could have been different after removal of Ashraf had the two ministers who are mired in controversies shown the door. There was also a strong indication that the ministers would be dropped from the cabinet.

But none of them were axed.

A crucial question had been raised in and outside of AL: why was Ashraf removed while these controversial ministers remained in the cabinet?

His removal had also given an impression that a politician with clean image was punished. Ashraf drew sympathy for his clean image as an honest politician. But the premier did not allow such criticism to fester.

Did Hasina make a compromise by giving Ashraf the portfolio that she herself had been holding?

Whatever the consideration, the turn of events has left a strong message: honesty in politics still matters.

A minister without portfolio is noth-



Nobel Laureate Prof Muhammad Yunus being greeted by President Francois Hollande of France at the Elysee Palace at a dinner programme on July 20.

PHOTO: YUNUS CENTRE

Mustafiz show on

FROM PAGE 1

After Stiaan van Zyl was caught behind in the 14th over, the visitors rode on a good stand between Dean Elgar and the in-form Faf du Plessis under a surprisingly clear and bright sky.

At lunch they were at a relatively comfortable 104 for 1. However, that's when Shahid and the bowlers put their plan in motion. Sticking to an immaculate line and length, Shahid bowled five maidens in between overs 30 and 38. In fact, he didn't give a single run in his third spell, which was of five overs.

The hosts had given away just 28 runs in 16 overs after lunch and the pressure eventually got to the visitors.

Tajul Islam got Elgar caught behind down the leg-side in the 47th over and a few balls later Shakib Al Hasan trapped du Plessis in front of the wicket with an arm-ball that stayed a bit low.

From a 104 for 1, the visitors suddenly slumped to a 136 for 3. Still, they looked good with the ever dependable

Hashim Amla and newbie Temba Bavuma stroking the ball around.

At 173 for 3, it seemed as though the visitors were gradually taking the advantage away from the hosts, but that's precisely when Mustafizur unleashed his magic.

With a slightly older ball in the 60th over, the left-arm pacer destroyed South Africa's middle order. He first removed Amla, who attempted to go for a drive in a bid to get back the run-flow and edged one to the keeper.

The very next ball saw his cutter jam into JP Duminy's pads. While the umpire refused to give that one out, the review went in favour of the hosts.

A ball later the left-arter fired in an in-swinger that uprooted Quinton de Kock's stumps. Mustafizur, who hadn't received a wicket in his first 13 overs, was back in his elements, childishly clapping away to glory.

That over changed the complexion of the game. Jubair came in next and got Vernon Philander caught in the

slips in the 71st over.

His two other wickets came in a slightly bizarre manner. He bowled a half-tracker to Simon Harmer in the 80th over. Harmer absolutely creamed that with the middle of his bat. To his surprise though, he found that the ball only travelled as far as Mominul Haque at short-leg.

Mominul, who was actually trying to evade the ball, somehow got stuck to it. A similar mid-pitch delivery got Dale Steyn caught at mid-off.

Eventually the visitors were bundled out in 83.4 overs when Bavuma was caught at deep mid-wicket off Mustafizur. Bavuma, who scored a half-century, seemed the most composed batsman of the lot.

With a disciplined bowling performance on Day One of the Test, Bangladesh have given themselves a rare opportunity of taking control of a Test match. However, much like the ODIs and the T20s, the ball now lies in Bangladesh batsmen's court.

Stunning discovery

FROM PAGE 1

Scientists because they have been regarded as possible building blocks of other subatomic particles, and are even more basic than the ubiquitous, negative-charge carrying electron (when electrons are moving inside a crystal).

"The physics of the Weyl fermion are so strange, there could be many things that arise from this particle that we're just not capable of imagining now," said corresponding author M Zahid Hasan, a Princeton professor of physics who led the research team.

Among two sons and a daughter, Hasan is the eldest of Rahmat Ali and Nadira Begum. Rahmat is a lawyer and Nadira a housewife.

He did his SSC and HSC from Dhanmondi Government Boys High School and Dhaka College with outstanding results.

Hasan studied at the University of Texas in Austin and got his PhD from Stanford University. He joined Princeton as a lecturer.

Now, he is a professor of Physics with a specific interest in the field of Quantum Condensed Matter Physics at the university.

The researchers report, in the journal *Science* July 16, the first observation of Weyl fermions, which, if applied to next-generation electronics, could allow for a nearly free and efficient flow of electricity in electronics, and thus greater power, especially for computers, the researchers suggest.

Weyl fermions could provide a much more stable and efficient transport of particles than electrons, which are the principle particle behind modern electronics. Unlike electrons, Weyl fermions are massless and possess a high degree of mobility; the particle's spin is both in the same direction as its motion -- which is known as being right-handed -- and in the opposite direction in which it moves, or left-handed.

The researchers' find differs from the other particle discoveries in that the Weyl fermion can be reproduced and potentially applied, Hasan said.

Typically, particles such as the famous Higgs boson are detected in the fleeting aftermath of particle collisions, he said. The Weyl fermion, however, was discovered inside a synthetic metallic crystal called tantalum arsenide that the Princeton researchers designed in collaboration with researchers at the Collaborative

Innovation Centre of Quantum Matter in Beijing and at National Taiwan University.

The Weyl fermion possesses two characteristics that could make its discovery a boon for future electronics, including the development of the highly prized field of efficient quantum computing, Hasan explained.

For a physicist, the Weyl fermions are most notable for behaving like a composite of monopole- and antimonopole-like particles when inside a crystal, Hasan said. This means that Weyl particles that have opposite magnetic-like charges can nonetheless move independently of one another with a high degree of mobility.

The researchers also found that Weyl fermions can be used to create massless electrons that move very quickly with no backscattering, wherein electrons are lost when they collide with an obstruction. In electronics, backscattering hinders efficiency and generates heat. Weyl electrons simply move through and around roadblocks, Hasan said.

"It's like they have their own GPS and steer themselves without scattering," Hasan said. "They will move and move only in one direction since they are either right-handed or left-handed and never come to an end because they just tunnel through. These are very fast electrons that behave like unidirectional light beams and can be used for new types of quantum computing."

Prior to the *Science* paper, Hasan and his co-authors published a report in the journal *Nature Communications* in June that theorised that Weyl fermions could exist in a tantalum arsenide crystal. Guided by that paper, the researchers used the Princeton Institute for the Science and Technology of Materials (PRISM) and Laboratory for Topological Quantum Matter and Spectroscopy in Princeton's Jadwin Hall to research and simulate dozens of crystal structures before seizing upon the asymmetrical tantalum arsenide crystal, which has a differently shaped top and bottom.

The crystals were then loaded into a two-storey device known as a scanning tunnelling spectromicroscope that is cooled to near absolute zero and suspended from the ceiling to prevent even atom-sized vibrations. The spectromicroscope determined if the crystal matched the theoretical

specifications for hosting a Weyl fermion. "It told us if the crystal was the house of the particle," Hasan said.

The Princeton team took the crystals passing the spectromicroscope test to the Lawrence Berkeley National Laboratory in California to be tested with high-energy accelerator-based photon beams. Once fired through the crystal, the beams' shape, size and direction indicated the presence of the long-elusive Weyl fermion.

First author Su-Yang Xu, a postdoctoral research associate in Princeton's Department of Physics, said that the work was unique for encompassing theory and experimentalism.

"The nature of this research and how it emerged is really different and more exciting than most of other work we have done before," Xu said.

"Usually, theorists tell us that some compound might show some new or interesting properties, then we as experimentalists grow that sample and perform experiments to test the prediction. In this case, we came up with the theoretical prediction ourselves and then performed the experiments. This makes the final success even more exciting and satisfying than before."

In pursuing the elusive particle, the researchers had to pull from a number of disciplines, as well as just have faith in their quest and scientific instincts, Xu said.

"Solving this problem involved physics theory, chemistry, material science and, most importantly, intuition," he said. "This work really shows why research is so fascinating because it involved both rational, logical thinking, and also sparks and inspiration."

Weyl, who worked at the Institute for Advanced Study, suggested his fermion as an alternative to the theory of relativity proposed by his colleague Albert Einstein.

Although that application never panned out, the characteristics of Weyl's theoretical particle intrigued physicists for nearly a century, Hasan said.

Actually observing the particle was a trying process -- one ambitious experiment proposed colliding high-energy neutrinos to test if the Weyl fermion was produced in the aftermath, he said.

The hunt for the Weyl fermion began in the earliest days of quantum

RAJON MURDER Interpol issues red notice on Kamrul

STAFF CORRESPONDENT

Interpol yesterday issued a red notice on Kamrul Islam, now in custody of Saudi Arabian police, in connection with Samiul Alam Rajon murder case.

"The red alert has been issued following requests from Bangladesh authorities," Assistant Inspector General of Police Mahbubur Rahman Bhuiyan, who is in-charge of the Interpol desk at police headquarters in Dhaka, told The Daily Star last night.

Kamrul, a key accused in the gruesome killing of the 13-year-old boy in Sylhet on July 8, had fled the country soon after the killing.

Later, when a video clip of the incident went viral on the social media, some expatriate Bangladeshis tracked him down in Jeddah, caught him and handed him over to the Bangladesh mission there. Later, Jeddah police took him under their custody.

Alif Mahbubur Rahman said the red notice was issued since Bangladesh has no extradition treaty with Saudi Arabia. It was part of efforts to bring him back to Bangladesh through Interpol.

Issuing a red notice -- which according to the Interpol website is "to seek the location and arrest of wanted person with a view to extradition or similar lawful action" -- is one of the ways in which Interpol informs its 190 member countries that an arrest warrant has been issued for an individual by a judicial authority.

Lalitgate rocks Indian Rajya Sabha

TNN, New Delhi

A united opposition yesterday stalled proceedings in Rajya Sabha over Lalit Modi issue even as a combative government accused it of running away from a debate.

The opposition created uproar over Lalit Modi controversy and demanded resignation of foreign affairs minister Sushma Swaraj over her help to the former IPL chief.

The Upper House saw repeated adjournments before it was finally adjourned for the day as opposition refused to relent.

The opposition charge was led by Congress leader Anand Sharma, who moved an adjournment motion.

rum theory when physicists first realised that their equations implied the existence of antimatter counterparts to commonly known particles such as electrons, Hasan said.

"People figured that although Weyl's theory was not applicable to relativity or neutrinos, it is the most basic form of fermion and had all other kinds of weird and beautiful properties that could be useful," he said.

"After more than 80 years, we found that this fermion was already there, waiting. It is the most basic building block of all electrons," he said. "It is exciting that we could finally make it come out following Weyl's 1929 theoretical recipe."

Ashvin Vishwanath, a professor of physics at the University of California-Berkeley who was not involved in the study, commented: "Professor Hasan's experiments report the observation of both the unusual properties in the bulk of the crystal as well as the exotic surface states that were theoretically predicted. While it is early to say what practical implications this discovery might have, it is worth noting that Weyl materials are direct 3-D electronic analogs of graphene, which is being seriously studied for potential applications."

The team included numerous researchers from Princeton's Department of Physics, including graduate students Ilya Belopolski, Nasser Alidoust and Daniel Sanchez; Guang Bian, a postdoctoral research associate; associate research scholar Hao Zheng; and Madhab Neupane, a Princeton postdoctoral research associate now at the Los Alamos National Laboratory; and Class of 2015 undergraduate Pavel