

performed genome-wide genotyping identifying 44,109 CNVs from 1717 genomes across 12 human populations. A large number of CNVs were identified in chromosomes 14, 8, 2 and 15, while lesser number of CNVs were found in chromosomes 13, 20 and 18. The study also allowed tracing the path of human migration.

Due to lateral growth with slope-dependent speeds and relaxation mechanisms, the large-scale behaviour of naturally occurring growth models, such as the ballistic deposition model and corner growth model, has sub-diffusive height fluctuations and non-Gaussian scaling limits. A large class of such models are believed to exhibit universal behaviour in the so-called Kardar–Parisi–Zhang universality class, which is empirically also seen in many real-world phenomena such as mutant bacterial colony formation, in the slow combustion of paper, and in the coffee ring effect. Riddhipratim Basu (ICTS, Bengaluru) described the serious mathematical challenges in rigorous understanding of these models,

particularly beyond the limited class of exactly solvable ones. He also described a new approach combining the exactly solvable inputs together with geometric understanding which is recently being pursued by him and his co-workers, and has yielded some promising results.

Jayanth Vyasnakere (APU, Bengaluru) introduced the field of cold atoms and the necessity of artificial gauge fields. He then showed how a nonabelian gauge field induces a Rashba spin orbit coupling (RSOC) in an interacting system of fermions. He demonstrated that a new kind of Bose–Einstein condensate can be achieved using RSOC. This is made out of a novel kind of bosons, named Rashbons, whose properties are solely governed by RSOC. Finally, he showed, by a calculation of quantum fluctuations, that RSOC can help boost the transition temperature of weak superfluids.

Ergodic hypothesis describes the long-term behaviour of chaotic systems. Using ergodic theory and harmonic analysis, Anish Ghosh (TIFR, Mumbai) estimated

Diophantine exponents of points on affine varieties. This has connections with the theory of automorphic forms and Ramanujan’s conjectures.

Parthasarathi Dastidar (IACS, Kolkatta) spoke about supramolecular gels and coordination polymers, and their potential in crystal engineering. He described about self-assembled fibrillar networks as part of designing supramolecular gels and cited examples of gelation-inducing supramolecular synthons developed by his group using simple organic salts. The applications of these molecules range from containing oil spills to drug delivery and synthesis of non-steroidal anti-inflammatory drugs.

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## MEETING REPORT

### When science meets art\*

In a first of its kind, a one-day workshop on communicating science through Madhubani folk art was organized at Mohali.

The workshop was conducted by Bitasta Das (Indian Institute of Science, Bengaluru) and Pratik Prabhakar (Madhubani artist and Assistant Art Coordinator at Bihar Museum, Madhubani, Bihar). The workshop was open to all students, researchers and scientists at IISER-Mohali.

Today, there is widespread experimentation in using art as a tool for communicating science in the education sector. This workshop was organized with the aim of introducing students, young scientists and researchers in harnessing the synergy of art and science to communicate their research to a non-scientific audience.

The workshop consisted of two sessions. In the first session, Das and Prabhakar spoke about the uniqueness of folk art with emphasis on Madhubani, a traditional and popular folk art form from the

Mithila region of Bihar. The history of Madhubani – its origin, its basic components and contemporary adaptations were some of the topics that were discussed. Prabhakar also showcased his work explaining the many ways in which he has incorporated themes depicting present-day social and societal practices in his paintings, giving them a modern twist.

The second session of the workshop provided participants an opportunity to try their hands at Madhubani painting, with Prabhakar guiding and helping them in conceptualizing and painting science-based themes.

The workshop gathered positive responses from both the participants and the experts. ‘Relating art to science is fantastic. We did not have anything like this before’, said Inayat, a third-year undergraduate student. Neerja Sahasrabudhe (Department of Mathematics) echoed Inayat’s opinion. ‘I thought it was excellent. It’s a great idea to understand science through art. In fact, geometry and topology are very open to interpretation through art’, she said enthusiastically.

Das believes traditional folk art such as Madhubani can help build conversations between the scientific community and the public. ‘Scientists are at one end of the spectrum while the public on the other extreme side’ said Das, reflecting from her own experiences and observations. This workshop was also the first time Prabhakar was interacting with scientists. ‘I am very glad to have been a part of this workshop. I always thought workshops such as these took place abroad. It’s nice to know research institutes like IISER are organizing them too. It’s a wonderful approach,’ he said.

In recent times, both scientists and policy makers in India have been vocal about the need for communicating science amongst the public, to help develop a scientific temperament. Workshops such as these help in bringing fun back into science; a place where scientific ideas can be repacked and presented in creative and engaging ways.

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\*A report on the workshop on 14 April 2018, at the Indian Institute of Science Education and Research, Mohali.