

GRAVITAS APNO 2019 NEWSLETTER ADELAIDE, AUSTRALIA VOL. 3 8 MAY 2019

Gravitas was inspired by the Latin word for 'Gravity', it being the fundamental force of nature that holds our universe together - much like the passion for physics that binds people of diverse backgrounds and aspirations at a momentous occasion like APhO.

02-1

RISING TO THE CHALLENGE

Q2-2

INSIDE

EXAM MODE ON

Theoretical exam challenges delegates to the next level

KAURNA PEOPLE

Meeting the traditional owners of the land and learning their heritage

TASTY TOUR

Discovering Adelaide like a local on a market tour

NINNA MARNI*

HELLO, HOW ARE YOU?

Upon finishing their first major challenge of the APhO competition, students were yesterday taken on a beautiful journey through the culture and practices of Australia's Indigenous people.

At the South Australian Museum, some were treated to an introduction to Ethnoastronomy of Australia's First Peoples, while others kicked off the experiential journey by walking through the Australian Aboriginal Cultures Gallery.

Indigenous astronomy dates back tens of thousands of years, naming them the oldest astronomers in the world. They have been known for developing ways to observe the Sun, Moon and stars to help with navigation and predict the weather.

One kilometre away, at the Adelaide Botanic Garden, a second group of APhO students were being taken through a different journey of Adelaide's history. The gardens are home to some endangered plants, one of them being the 'Wollemia nobilis' or Wollemi Pine, which was said to have been in existence since the Mesozoic Era.

Students were also taught about the wetlands at the garden's First Creek Wetland, which functions as a water sustaining system for the Adelaide Botanic Garden.

*Kaurna language



DELEGATES SHARE THEIR THOUGHTS ON THE THEORETICAL EXAM



SABINA DRAGOI ROMANIA

"The theoretical exam has three problems and one of them was mechanics, but it was pretty challenging because it has three different reference systems and we need to choose which one to use. The other question was related to quantum computing, and the final one was about super productive astronomical jets involving protons and particles."



NISARG PRATIKKUMAR SHAH UNITED ARAB EMIRATES

"I guess 5 hours is a reasonable amount of time to solve the questions and I thought the exam was of moderate difficulty level for me. I found the mechanical part not too hard as it's where my interest lies. I feel I could score higher in the experimental exam. On the theoretical side, we'll just have to wait to find out."



ITGEL DELGERDALAI MONGOLIA

"Although all the questions were quite challenging, I am not too concerned about the results as I tend to enjoy the unique experience of the exam itself. I found all the questions were quite interesting. As some of the topics that came up in the exam have been covered before in our preparation, they were well within our expectations."



PHYSICS OLYMPIAN RETURNS AS A VOLUNTEER

This is Yongqin's second time being a part of APhO, only this time she isn't competing. "It's still very exciting, but a bit weird because I was at the front of the exam hall where I could see all the students in today's exam," said the former Physics Olympian who represented Australia at APhO 2018 in Vietnam. For Yongqin, her experience last year was gratifying, driving her to return as a Volunteer instead. "We had such a great time last year. I felt it would be good to give other people the same experience in Adelaide," she said.

As a Team Guide for delegates from Taiwan, she's proud of them and believes that they carry the spirit of APhO. "They're all passionate about physics and get along very well with each other. Though they've just met, they bonded really well as a team, which is very nice to see as that's what APhO is all about," said Yongqin.

AUSTRALIA'S PHYSICS TRAILBLAZERS

Adelaide-born Astronaut, Dr Andrew Thomas, became the first Australian to participate in a space research mission in 1996. He found his passion in space when he was a young boy building rockets with paper cardboards. In 1973, he received a Bachelor of Engineering with First Class Honours from the University of Adelaide, followed by a PhD in Mechanical Engineering in 1978. In 1993, Dr Thomas was assigned as a mission specialist by NASA after an extensive one-year training. He completed four flights and has logged over 177 days in space during his 22 years of service at NASA. In his last journey on the STS-114 Discovery, he was involved in the assembly of the International Space Station, where he inspected the new flight safety procedure and repaired the thermal protection system.



AUSSIE WORD OF THE DAY



Short for 'barbecue', here's a term you'll hear around summertime as we Aussies love a good barbecue on a hot day.

E.g. We had friends over on the weekend for a bit of a barbie.

WEATHER



High 17° Low 11°

JOIN THE CONVERSATION

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● apho2019.asi.edu.au

ACKNOWLEDGEMENT OF COUNTRY

Kaurna miyurna, Kaurna yarta, ngadlu tampinthi

The Asian Physics Olympiad Committee acknowledges that we are meeting on the traditional country of the Kaurna people of the Adelaide Plains. We recognise and respect their cultural heritage, beliefs and relationship with the land. We acknowledge that they are of continuing importance to the Kaurna people living today.



A TASTE OF ADELAIDE

After a long night of deliberation over the APhO 2019 theoretical examination questions, Team Leaders and Observers were treated to a gastronomical experience that took them across the continents, from right here in the heart of Adelaide city.

From Chilean empanadas and German mettwurst, to sweet Turkish delights and savoury South Korean pancakes, the touring group indulged in some of the best delicacies one could find in the iconic Adelaide Central Market.

"I really enjoyed it. It made me feel like a local. I've had a taste of the life here, the local shops and its delicious food. It's kind of rejuvenating after last night," said China's Team Leader Jiang Shuo.

Apart from the food, the group was also introduced to the rich history and culture behind the market, which celebrated 150 years of establishment last year. Many patrons are migrants from all over the world whose humble beginnings date back decades, creating a diverse atmosphere.

With fresh produce available in abundance, specially sourced locally and sold, food operators themselves have easy access to fresh ingredients.

"It's nice to see so much fresh produce in one place. Coming from the United Arab Emirates (UAE), I see more modern kinds of markets where there aren't more fresh foods in one place so it's very refreshing. It is also great to know a lot of them are small business owners," said Subramaniam Krishnamoorthy, UAE Team Leader.

ADELAIDE INSIDER

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SAPPHIRE CLOCK



Accurate frequency and timing signals are used in most electronic systems we use every day, including radar and GPS for navigation.

The Sapphire Clock, is the result of more than two decades of research and is 1,000 times more precise than any other commercial system; it is so precise it gains or loses only one second over 40 million years.

TODAY'S

SNEAK

Developed by the University of Adelaide's Institute for Photonics and Advanced Sensing, and start-up company Cryoclock Pty Ltd, the Sapphire Clock generates an incredibly pure ultra-low noise signal.

The Sapphire Clock offers the potential for an upgrade of the Jindalee Over-The-Horizon Radar Network (JORN) system, which monitors aircraft and ships off Australia's northern approaches.

If JORN has access to better signals then it will be able to see smaller objects, travelling slower, at much greater distances – and that means keeping Australia safer.

This is a perfect example of fundamental research in universities leading to high technology advances that benefit our nation. Be sure to keep an eye out on it when visiting the campus today!