Facets of Science

Tuesday
16 April 2024

TRINITY SCHOOL

Welcome to Facets of Science 2024.

I'm thrilled to introduce myself as the new STEM Coordinator at Trinity School, taking over the reins from Katy Manisier. I'm incredibly excited to and take on this role and foster a love for science, technology, engineering, and math in our students.

We all recognise the increasing importance of STEM fields in today's world. The solutions to issues like climate change, renewable energy, and sustainable development all lie within the realm of science and technology. But the impact of STEM goes far beyond environmental concerns. The rise of Artificial Intelligence (AI) is rapidly transforming our world, and its influence will only continue to grow. This, coupled with the ever-shifting landscape of work, means the jobs of tomorrow will look vastly different from those of today.

This evening's Facets of Science lecture aims to bridge this gap by inspiring our students to see the incredible possibilities within STEM. By showcasing the real-world applications of science and the innovative minds behind them, we hope to ignite a passion for STEM and encourage the next generation of scientists, engineers, and innovators who can address the critical challenges facing our planet and navigate the exciting, yet complex, world shaped by AI. Equipping our students with a strong foundation in STEM will ensure they are prepared to thrive in this dynamic future.

Jack Manchester
Head of STEM

Programme for the evening

5.30 pm **Welcome and introduction**
Dr Jack Manchester, Head of STEM

5.35 pm **Searching for Earth 2.0 - Dr Matthew Bothwell**

Matthew will take us on a captivating journey to explore the boundless expanse of the universe, delving into the ongoing quest for exoplanets and the potential for life beyond our own planet.

He will discuss the various methods used by astronomers to locate and understand distant galaxies, the building blocks of the universe. He will then delve into the fascinating techniques used to catalogue these galaxies, painting a picture of the large-scale structure of the cosmos.

The talk will also cover exoplanet discovery, where scientists are actively searching for planets orbiting stars beyond our solar system. Matthew will exploring the various methods employed to detect these exoplanets, such as the transit method and the radial velocity method.

Finally, he will investigate the intriguing question of habitability, exploring the requirements a planet might need to sustain life as we know it.

Q&A Session

6:30 pm **Comfort break**

6:45 pm **Infectious diseases and global health - Professor Julian Ma**

Until 2020, serious infectious disease had become a rarity in the developed world. But the recent events have taught us how vulnerable we can be to new and emerging infections.

They also highlighted massive inequities in access to medicines across the globe. How can we prepare better for the next pandemics and how do we ensure that the needs of people living in developing regions will also be served?

Q&A Session

7.30 pm **Final remarks and Close**

Our speakers

Dr Matthew Bothwell is Public Astronomer at the University of Cambridge and a science communicator who gives astronomy talks and lectures on many areas of astronomy. He obtained his masters degree in astrophysics at the University of Southampton, before obtaining his PhD from the University of Cambridge. His research interests centre around the role of gas in galaxy evolution across cosmic time and he has published 42 articles in revered journals (including two in Nature).

In his research, Matthew has found some of the most luminous and extreme galaxies, where stars are formed thousands of times faster than in our own region of the universe including the Milky Way. From these galaxies, he has been able to study and improve our understanding of gas physics and star formation laws.

Matthew is always keen to make astronomy and physics more accessible and engaging to a wide audience and has written a range of books including 'The Invisible Universe: why there's more to reality than meets the eye' and a children's book, 'Astrophysics for Supervillains'.

Julian Ma joined St. George's in October 2003, leading a research team that specialises in immunology and the production of recombinant pharmaceuticals using plant biotechnology (molecular pharming). His research is particularly focused on using biotechnology tools to produce novel pharmaceutical proteins to improve global access to modern medicines.

As a post-doctoral fellow at The Scripps Research Institute, California, Professor Ma was a pioneer in the engineering, expression and assembly of monoclonal antibodies in transgenic plants. In 1997 he was made Consultant in Immunology and Oral Immunotherapy at Guy's Hospital Dental School, the first consultant appointment in Oral Immunology in the UK.

He is currently the Principal Investigator for Pharma-Factory, an €8.3M EU Horizon 2020 project to advance the commercial pipeline of products from molecular pharming.