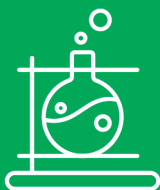




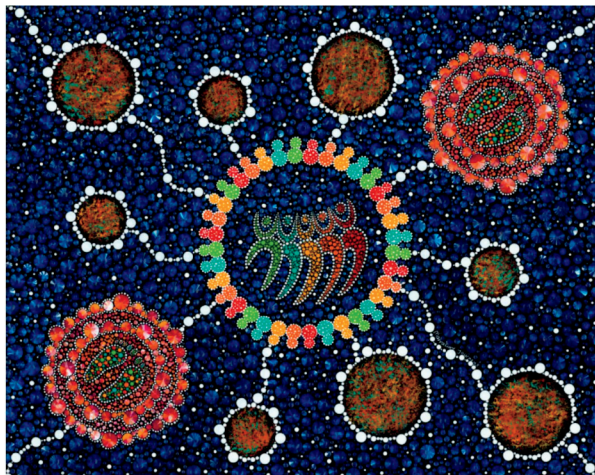
Junior  
Science  
Olympiad

# 2023

## Australian Junior Science Olympiad Team



AUSTRALIAN  
SCIENCE  
INNOVATIONS



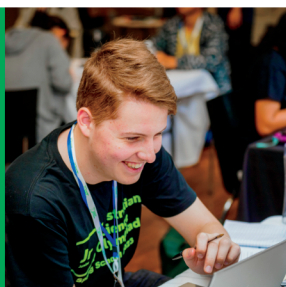
## Reach for the Stars (and beyond) February 2023

Sarah Richards is a Ngiyampaa woman born on Gadigal land, practising art and living on Ngunnawal/Ngambri country since 2012.

“I hope that the students who participate in the Australian Science Innovations programs can draw strength from this piece and stretch themselves to reach their highest potential.”

## Acknowledgement of country

We wish to acknowledge the Ngunnawal people as traditional custodians of the land we are meeting on and recognise any other people or families with connection to the lands of the ACT and region. We wish to acknowledge and respect their continuing culture and the contribution they make to the life of this city and this region. We would also like to acknowledge and welcome other Aboriginal and Torres Strait Islander people who may be attending today's event.



# CONTENT

**Order of Proceedings** 4

**Congratulations** 5

## **Team Members**

• Ishika Balram 6

• Oliver Downing 7

• Qiyang Ning 8

• Zhenghao Ou 9

• Elliot Sunderland 10

• Emily Xiao 11

## **Team Support**

• Dr Kathryn White 12

• Dr Tammy Humphrey 13

• Suren Mendis 13

**Program Supporters** 14

**About Us** 15

**Contact Us** 16



# ORDER OF PROCEEDINGS

## Welcome to Country

## Master of Ceremony

Vanessa Kates, Executive Director  
Australian Science Innovations

## Welcome Address

Fiona Wright, Board Member  
Board of Directors, Australian Science Innovations

## Guest Speaker

Professor Tim Senden BSc (Hons) PhD (ANU)  
Director, Research School of Physics, ANU

## Program Director

Dr Kathryn White, BSc (Hons) PhD (USyd)  
Director, Junior Science Olympiad Program

## Team Announcement

## Thank You & Close

## Light Refreshments



# CONGRATULATIONS TO THE 2023 AUSTRALIAN JUNIOR SCIENCE OLYMPIAD TEAM

The International Junior Science Olympiad is a globally recognised competition, held annually, that features the best and the brightest young science students from around the world.

Participating in the Junior Science Olympiad can be an incredibly rewarding experience for students. Not only does it provide them with an opportunity to showcase their knowledge and skills in science, but it also exposes them to a diverse range of perspectives and approaches to problem-solving.

Furthermore, being a part of the Australian Junior Science Olympiad team can help students to develop important life skills such as teamwork, communication, and time management. It can also inspire them to pursue careers in science and technology, and to become the next generation of innovators and problem-solvers.

Overall, the Junior Science Olympiad is an excellent platform for young people who are passionate about science to challenge themselves, learn new things, and connect with like-minded individuals from around the world.

I would like to congratulate the students who have been selected to represent Australia in Thailand in December, and acknowledge the support of their families, principals and teachers in inspiring these remarkable young people to step outside their comfort zone and reach for the stars.

**Anna Davis, Chair of the Board  
Australian Science Innovations**

# ISHIKA BALRAM

Perth Modern School, WA



Ishika enjoys all disciplines of science, as she believes they are all “deeply interconnected and fascinating in their own way”. She thinks having a broad knowledge of multiple disciplines can be really helpful as it strengthens understanding in other areas.

Her parents have always encouraged her to pursue science and STEM subjects. Ishika’s school also encourages students to try science

programs and competitions like Junior Science Olympiad.

A scientist that Ishika finds inspiring is Stephen Hawking. “He not only made profound contributions to the field of physics, specifically surrounding black holes, but also wrote multiple science books, such as *A Brief History of Time*, making complex topics accessible to a wider audience.”

Outside of science, Ishika plays tennis and table tennis socially. She also enjoys reading, and as she says, “I can often be found in the library”.

**“At Spring School, some of my initial lab experiments and practicals did not work out or yielded disappointing results. Although this was disheartening at first, I tried to remember that there are always new opportunities to try again and that if there is a problem it most likely can be solved.”**



# OLIVER DOWNING

Melbourne High School, Vic



Encouraged by his grandmother, a retired science teacher, Oliver became inspired by science early on.

“When I was young, she showed me and my brothers some water from a nearby pond. We spent a long time marvelling over all the different life forms, which showed me how awesome and complicated nature can be.”

Oliver is also very grateful to his year 7 science teacher who introduced him to the Junior Science Olympiad and “all my teachers who support me now”.

“My favourite discipline of science is physics. I like that physics can be used to model and explain a wide range of phenomena - some that are unimaginably large, like the rotation of galaxies, all the way down to how atoms hold themselves together.”

Inspired by Galileo, Oliver says, “He radically changed our understanding of the world... and his work was later built upon by Newton, giving us many ideas and theories that are still relevant today.”

Outside his science studies, Oliver likes to play, coach and referee basketball. He also loves to read books about anything, and as he notes, “I play the flute (badly)”.

**“Sometimes, it's important to slow down and take the time to think about what you want to do next. At the Spring School, we were given a limited amount of a solution to titrate, but I managed to almost immediately contaminate about half of my solution. I just had to stay calm and do the best with what I had.”**



# QIYANG NING

James Ruse Agricultural High School, NSW



Qiyang's favourite science discipline is chemistry as he finds it more intuitive.

He thinks biology is interesting, whilst physics provides challenges like "figuring out free-body diagrams and electrostatics".

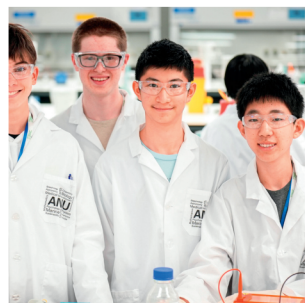
What Qiyang enjoys most about science is learning new things.

Encouraged into science by his parents and his science teachers, Qiyang is also inspired by Richard Feynman. "I just think his work in quantum stuff was pretty cool. And he was a great teacher."

Beyond science, Qiyang enjoys doing Olympiad Mathematics, playing puzzle solving games, reading fantasy adventure books and webnovels. He also plays the piano, "albeit not that well", and does cadets.

Qiyang thinks that in the future he might take a place in academia if it was offered to him. "I love science, and I love mathematics, so being able to pursue a field in one of those two subjects would be amazing for me."

**"When school exams have not gone the way I want, I take away what I can - if it was fun, I appreciate the experience. If it had problems I couldn't solve, I learn my weaknesses and what I need to do to make up for them. Unless it is an English exam. Then I cry (just kidding)!"**





# ZHENGHAO OU

Cannon Hill Anglican College, QLD



Zhenghao's favourite discipline of science is physics. "I love physics as it explains how and why objects behave as they do. I think it is beautiful and amazing that so much of the phenomena in our world can be described by strict laws and equations."

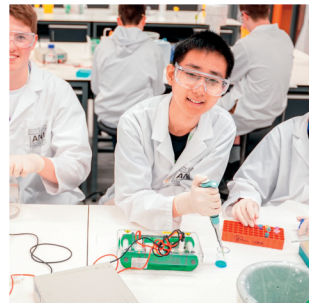
He is inspired by the accidental scientific discoveries throughout history, such as x-rays and penicillin because it shows that there are so many

unexpected and unforeseen outcomes in science. "You never know what surprising results you may see!"

Outside of science Zhenghao enjoys playing basketball, volleyball, and the occasional table tennis match. "I also find programming and reading fun and easy to pass time with. Finally, video gaming and watching YouTube is how I relax and break from work."

Zhenghao believes that the logical reasoning and problem-solving skills he has gained from the Science Olympiad will apply to whatever career path he chooses in the future.

**"It's never a great feeling when you realise you've made a big mistake in a long question, or accidentally poured the wrong solution into waste, but I think the important thing is to not start panicking - it never helps. When I am faced with such a situation, I try my best to stay calm (which is not easy) and just continue doing what I can to the best of my ability."**



# ELLIOT SUNDERLAND

Normanhurst Boys' High School, NSW



Elliot loves all disciplines of science but has spent the most time on chemistry. “I love the types of things that it's able to explain, and I love the fact that it kind of acts as a bridge between the other disciplines of science”.

Elliot has “two incredible parents” who encouraged him from an early age to be curious and seek knowledge, which inevitably led him to science.

“My mum is a doctor who is really big on science and was very strong in it during school (especially biology). Aside from that, my amazing school has so many great science teachers who have encouraged me to give it a shot.”

The scientists he admires the most are the ones who are currently working in labs, researching, or writing papers on so many different topics. “I think they are incredibly admirable because they are making a difference and contributing right now; they are the ones making discoveries and expanding our knowledge while providing insight into potential solutions for the many modern-day problems that we as a society need to solve.”

Besides science, Elliot loves books, libraries, and reading in general. He enjoys playing board games with his family, plus doing sports and video games.

**“During the titration exam I accidentally pumped the wrong colourless liquid into half my stock solution - thankfully it turned out alright! The biggest tip I got out of that? Take your time and make sure you're holding the right container!”**



# EMILY XIAO

James Ruse Agricultural High School, NSW



Emily became interested in science in year 7 when her teacher demonstrated how to use a Bunsen burner for a chemistry practical lesson. She really enjoyed learning about evolution at school, as “the existence of life on our planet is something that always amazes and intrigues me”. Emily is interested in all branches of science, but physics is her favourite as “it can be seen in action in everyday life”.

Her school teachers have always encouraged Emily to learn more about the world and have been very supportive of her journey in science. “Throughout high school, my teachers, family and friends helped foster my passion for learning more cool scientific facts, which allowed me to develop problem-solving skills that I hope I can one day apply in the real world to make a change.”

Rosalind Franklin is a scientist whom Emily greatly admires, for her perseverance despite the challenges she faced as a woman in STEM, and for her amazing discovery of the structure of many molecules, especially DNA.

Outside of science studies, Emily’s hobbies include playing netball and basketball, running, reading books and photography.

**“My tip is to never give up! I once had to restart a chemistry titration practical several times, but I eventually reached an answer 0.01% off the actual value! My mindset is to focus on the present and learn from past mistakes.”**



# DR KATHRYN WHITE

Program Director



Dr Kathryn White has been an advocate and supporter of the Junior Science Olympiad program since 2016. She now leads the way as the Program Director.

Kathryn feels lucky that her family and teachers were all supportive of her pursuits in science. Meeting people through the 1993 International Chemistry Olympiad, where she was a bronze medallist, made a significant difference to the path she took.

She has a Bachelor of Science (Honours) and a PhD in Physical Chemistry from the University of Sydney. Kathryn subsequently worked as a post-doctoral researcher in the School of Physics at the University of Edinburgh. “My degree is in chemistry, but I love all the branches of science.”

Having made the change from research to education, she achieved national certification as a highly accomplished teacher in 2015 and is currently a science teacher in Canberra. She taught as part of the ANU Extension program from 2011-2020 and was a staff member for the Australian Chemistry Olympiad for several years. Kathryn is also a former Deputy Program Director of the Australian Science Innovations *Curious Minds* program.

Besides science, Kathryn also enjoys reading, running, bushwalking, and a little cooking, photography and drawing!

**“My PhD research took three years before anything worked: you have to be patient! You just have to pick yourself up, try and identify what went wrong, and keep going.”**



# DR TAMMY HUMPHREY

Deputy Program Director



Tammy is a scientist and science teacher who has supported Junior Science Olympiad students since 2020.

Tammy completed a Bachelor of Advanced Science with first class honours and a PhD in solid state physics (on the thermodynamics of low dimensional thermoelectrics) at UNSW. She completed post-doctoral work at UNSW, UoW and the

University of California Santa Cruz. She has also completed a Diploma of Education at Macquarie University and has worked for a number of years at James Ruse Agricultural High School in Sydney, teaching HSC physics.

# SUREN MENDIS

Deputy Program Director



Suren is a science teacher in Canberra who has been supporting the Junior Science Olympiad students since 2023.

He completed a Bachelor of Medical Science and Graduate Diploma in Secondary Education from the University of Canberra and a Master's Degree in Science Communication from the Australian National University.

He is undertaking a PhD at the Australian Catholic University. He currently teaches in the ANU Extension program and works as the Project Coordinator for meriSTEM.

# THANK YOU TO OUR SUPPORTERS

# Stile



Australian  
National  
University

Thank you to Stile for providing the online teaching platform to support the Junior Science Olympiad program.

Thank you to ANU for providing teaching space, labs and lab staff to support the Junior Science Olympiad program.

## SUPPORT FUTURE JUNIOR SCIENCE OLYMPIAD PROGRAMS

Australian Science Innovations provides Junior Science Olympiad programs aimed at inspiring and challenging young science enthusiasts.

Students who participate in the Junior Science Olympiad exam may earn an invitation to Spring School, where they can gain further skills, knowledge and experience. Exceptional students may also be chosen to represent Australia as part of the team at the International Junior Science Olympiad.

The Academy and Training Squad programs are tailored to support students who may have limited opportunities due to their geographic location, socio-economic background, or indigenous status.

**However, to unlock the full potential of these programs, we need your help. We are currently seeking sponsorship from those interested in supporting these young students.**

Scan this QR code to visit the ASI website and find out how you can help...



# PROUDLY DELIVERING THE JUNIOR SCIENCE OLYMPIAD PROGRAM

Australian Science Innovations is a not-for-profit organisation whose mission is to inspire, challenge and raise the aspirations of students in science through the delivery of innovative science extension programs.

Since 1991, we have been working in partnership with teachers, schools and organisations who understand the importance of investing in science education. We have developed a range of programs and initiatives aimed at identifying and nurturing talented students in science, from across Australia.

The Junior Science Olympiad programs are for students in Years 7 to 10. The exam covers a wide range of topics in science, including physics, chemistry, biology and Earth science. Students register through their school and sit the exam as a cohort in June.

Following the exams, select students may be offered a place in our Academy or Training Squad programs. These programs are by invitation, for students who have limited opportunities because of where they live, including regional and remote locations, their socio-economic background, and/or their indigenous status.

From the exam, we offer places to selected students to attend Spring School at the Australian National University. These 24 students undertake intensive sessions in biology, chemistry and physics, plus other enrichment activities.

A team is then chosen to represent Australia at the International Junior Science Olympiad. It is an achievement to be selected from such a pool of talent, and an honour for Australian Science Innovations to support these dedicated students.



# GOOD LUCK TO THE 2023 AUSTRALIAN JUNIOR SCIENCE OLYMPIAD TEAM

Thank you for attending. We hope the team have a wonderful experience whilst in Thailand from 1 December to 10 December.

To stay up to date with the Olympiad and other ASI news, please sign up to our newsletter and follow us on social media. Share your journey & tag us!

## Social Media



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## Contact Details



(02) 6125 6228



asi@asi.edu.au



www.asi.edu.au

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