



THE UNIVERSITY OF
SYDNEY



7th International STEM in Education Conference

STEM 2022

November 23-26

Virtual Conference



The International **STEM in Education Conference** is a biennial event hosted by a member of a world-wide consortium of universities. In 2022, the 7th STEM in Education conference will be hosted virtually by the Sydney School of Education and Social Work, The University of Sydney. The theme for STEM2022 is "STEM Futures: Expanding our horizons". This theme provides a springboard for STEM researchers and educators worldwide to consider how research findings and practical initiatives can strengthen STEM education of the future. We look forward to welcoming you at STEM2022!

KEYNOTE PRESENTERS

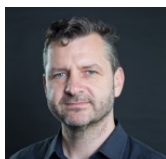
STEM Futures: Which way is "up"?



Merrilyn Goos is Professor of Education at the University of the Sunshine Coast, Australia. Previously she was Professor of STEM Education and Director of EPI*STEM, the National

Centre for STEM Education, at the University of Limerick, Ireland. Before moving to Ireland, she worked for 25 years at The University of Queensland, Australia. Following her first career as a food technologist, she taught mathematics, chemistry, and food science in secondary schools and technical colleges in Australia. Her academic research has investigated students' mathematical thinking, the impact of digital technologies on mathematics learning and teaching, numeracy across the curriculum and the lifespan, the professional learning of mathematics teachers and mathematics teacher educators, curriculum and assessment reform, and gender equity in STEM education. She is currently Vice-President of the International Commission on Mathematical Instruction and co-Editor-in-Chief of Research in Integrated STEM Education, a new journal to be published by Brill from March 2023.

Cosmic horizons and before the Big Bang: Inspiring physics through universal mysteries



Geraint F. Lewis is a Professor of Astrophysics at the Sydney Institute for Astronomy. After studying in London and Cambridge, he held research positions in the USA and Canada before moving to Australia in

2000. He joined the University of Sydney in 2002. His research combines observation and theory to reveal the dark-side of the universe, the matter and energy that shape the cosmos.

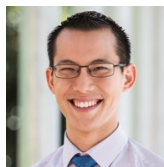
Promoting self-regulated learning approaches in an online inquiry learning context

如何促进在线探究环境下的自我调节学习？



Danhui Zhang is a Professor at Beijing Normal University. Her research is focused on the measurement and evaluation of teaching and instructional strategies in STEM education. She has worked with many school teachers to support them in their implementation of practices to develop an autonomy-supportive environment in science classes. In recent years, Dr. Zhang has been particularly interested in using diverse data mining techniques to trace students' inquiry learning in STEM with the aim of 1) providing more opportunities to develop self-regulated learning approaches, and 2) identifying potential learning difficulties to provide personalized scaffolding.

Meaning and meaningfulness: Expanding mathematics in the minds of our learners



Eddie Woo is a high school mathematics teacher and author who inspired students around the world through his online mathematics lessons published on YouTube (WooTube). In 2015, he was a recipient of the New

South Wales Premier's prize for Innovation in Science and Mathematics Education. In recognition for his advocacy of the importance of teaching and his dedication to nurturing future mathematicians and school leaders, Woo was appointed Education Ambassador in the Sydney School of Education and Social Work in 2018.

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