Australian National University
AUSTRALIAN NATIONAL CENTRE FOR THE PUBLIC AWARENESS OF SCIENCE

The Australian National Centre for the Public Awareness of Science presents the

ZOOMPOSIUM

Performance, Science and Technology

From comic mad scientists and infectious Jokers, to android science and the search for aliens

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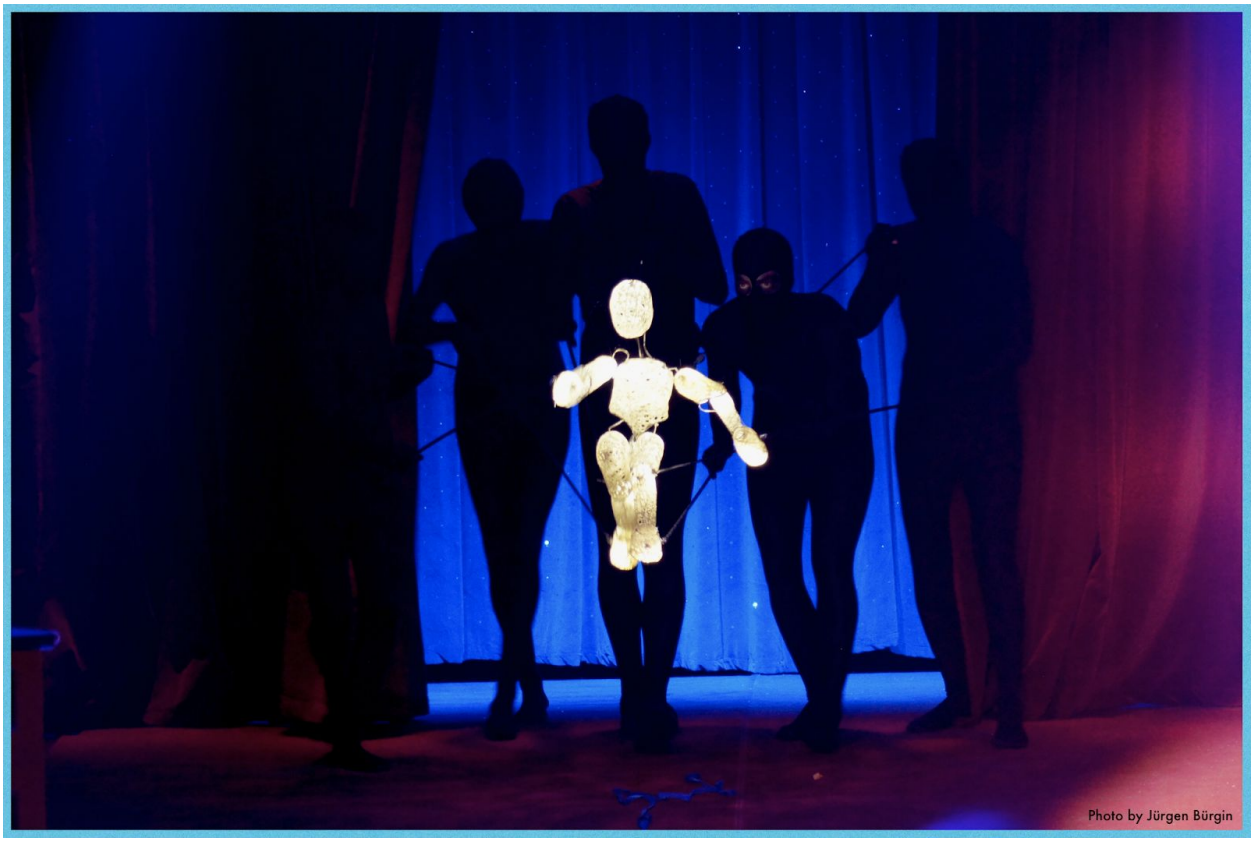
27 November 2020

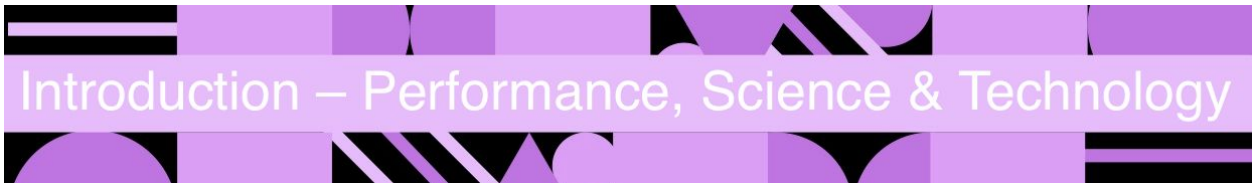
Register here: www.cpas.anu.edu.au/news-events/events



Popular entertainment has always been intertwined with the cutting edge of science and technology. It is a versatile frame for interpreting our relationship with technological and scientific advancement. This zoomposium will explore popular entertainment, including historical science and circus shows, as a site in which science and technology are represented in popular culture. It discusses to what extent the engineering of circus and performing bodies can be understood as a strategy to promote awe, how technological inventions have shaped popular performance and the cultures it helps constitute – and how much of a mutual shaping this is.

How do technological inventions and scientific innovations impact on popular performance, both at the apogee of the circus' popularity around 1900 and today? What kind of cultural and aesthetic effects does science and engineering in circus contexts achieve? What narratives emerge from the interplay between science and clowning in different media such as comics and animation?

This online symposium traces the fluid exchange between popular entertainment and scientific endeavours in various (trans)historical, contemporary contexts and media – it is a conversation between the past, present and future. Speakers will offer new insights into the popular history of technology, the cultural history of engineering and the history of popular performance; as well as in the material, practical nature of popular entertainment and its imaginaries in different media.



Dr Anna-Sophie Jürgens, Australian National Centre for the Public Awareness of Science, ANU

Put on a happy face! Welcome and Introduction – Part 1

"Ha ha ha!" combined with a cannibalesque smile – this is how the Joker's laughter is typically depicted in Batman narratives. And it has one outstanding and fascinating feature: it is able to detach itself from the violent clown. It is able to spread like a virus, clownifying its 'victims'. Indeed, in many Joker stories – in comics and (animated) films – Joker's laughter is not only called a virus, but also explained in scientific terms. In many stories the Clown Prince of Crime deals with virological and biochemical research, as does his counterpart Batman. This introduction to the Zoomposium takes 'Joker virology' as its starting point to reflect on the interplay of popular culture, science and technology – and why it matters to study it.

Anna-Sophie Jürgens is a Lecturer (Assistant Professor) in Popular Entertainment Studies and Science in Fiction Studies at the Australian National Centre for the Public Awareness of Science (CPAS) at the Australian National University (ANU). Previously, she was an Alexander-von-Humboldt Fellow at the ANU and the Free University of Berlin, Germany. She has published on comic performance and science/technology in culture, science in fiction, and the history of (violent) clowns and mad scientists across numerous academic journals. Her recent books include *Circus, Science and Technology: Dramatising Innovation* (edited; Palgrave Macmillan, 2020), *Manegenkünste: Zirkus als ästhetisches Modell* (co-edited, transcript, forthcoming) and *Poetik des Zirkus* (Winter, 2016). She is guest editor of two special themed journal issues published in 2020 with the *Journal of Science & Popular Culture and Comedy Studies.*

Melanie McMahon, Australian National Centre for the Public Awareness of Science, ANU

Science Stereotypes in Mainstream Comic Fiction – Introduction Part 2

There have been seven scientific stereotypes outlined as being the most common utilised in Western literature: the evil alchemist, noble scientist, foolish scientist, inhuman researcher, adventurer scientist, mad scientist and helpless scientist. It has been suggested that the presence of these science tropes hinder the uptake of students in the STEM field of study. Examining these stereotypes in mainstream comic fiction, in particular the Marvel Cinematic Universe (MCU) film series and DC Comics' Arrowverse television series, can potentially be used as a learning tool for later year high school students to better understand the harms of such clichés. In analysing both series, the findings showed that the qualities of every stereotype were present in a range of characters. As a result, a lesson plan was developed targeting students in years 8-10 and aligning with the Australian Curriculum to use these pieces and inform them of the inaccuracies and harms involved with the utilisation of scientific tropes in comic fiction.

Melanie McMahon is a second year undergraduate student at the Australian National University. She is currently studying a Bachelor of Science, majoring in both biochemistry and science communication. She is most interested in studying the presence of science in popular fiction as well as learning about the intricate details of biochemical processes, while her non-academic interests include digital marketing, coding, climate change, policy and sustainability. Aligning with her interests, she is currently fulfilling numerous volunteer roles in ANU clubs and societies, such as her role as Brand Management Director for ANU Fifty50 and Media and Marketing Manager for DEiFY Canberra. In addition, she is currently completing an internship with the Australian National Centre for the Public Awareness of Science.

Part 1 – Science and Comic Performance

Professor Stefan Buchenberger, Cross Cultural Studies, Kanagawa University (Japan)

Evil as Performance – Performing Evil

Three early clownish Superman villains – Mr. Mxyzptlk, Toyman and Prankster

If one thinks about clownish villains in superhero comic books, the first one to come to mind is, obviously, Batman's archenemy the Joker, arguably the greatest villain in graphic fiction. From pulp fiction-like villain to deranged serial killer and mass murderer, he sure has come a long way. There is no other character in comics quite like him. However, he was not the only

clownish villain in the early days of DC Comics as Superman, too, had to fight several villains for whom doing evil also meant performing their villainy in public. Just as Superman was a much brighter character than the later, darker Batman, these early villains seemed merely to be colourful anarchistic nerds. They would upstage the Man of Steel, make him look stupid and frustrate him, as he was unable to simply use his awesome super powers to best these pesky foes. The three foremost of these somewhat silly characters – Mr Mxyzptlk, the Toyman and the Prankster – have all enjoyed long careers fighting, but mostly annoying Superman, using both magic and science to do so. This presentation seeks to highlight these early Superman villains, three clownish characters who combine elements of magic, the circus and the mad scientist.

Stefan Buchenberger is a Professor at the Department of Cross-Cultural Studies of the Kanagawa University. He earned his PhD in Japanese Studies from the Ludwig Maximilian University in Munich in 2004. He is involved in the study of graphic narratives at the International Comparative Literature Association (ICLA), where he is co-chair of the Research Committee on Comics Studies and Graphic Narrative. He writes regularly on graphic fiction, on his second major field of study: mystery and detective fiction, and on popular culture and literature in general.

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Associate Professor Carol Hayes, Japanese Language and Studies, ANU School of Culture, History and Language, College of Asia and the Pacific

Reinvention, Transformation and the Darkside of Scientific Ethics in Tezuka Osamu's *Black Jack*

Dressed in surgical white, Black Jack's spiky hair is half black/half white, his face flawed by a ragged scar. Exploiting the rich and helping the disenfranchised, he stands as a challenge to medical convention. Full of graphic imagery of surgical mutilations and internal organs, Tezuka Osamu's manga series *Black Jack* speaks with sardonic humour to the darker side of medical ethics and the gambles medicine and science can play with the frailty of human life. Through distinctive narratives and visual aesthetics, the manga (and anime) of Tezuka Osamu (1928-1989) provide a site for reflection on the issues confronting Japan in the 1950s and 60s and speak forward to those challenges in today's world. He masterfully combines the realities of everyday life with the fantastic, SciFi 'other'. To Tezuka, the bright vision of new science and technology carried with it the same ethical problems of earlier times. While his famous character Astroboy presents a positive fictional model of nuclear power, a robot with emotional integrity who serves humanity. Uncompromising and psychologically challenging, *Black Jack* presents a much darker figure. Tezuka's work can be seen as a fusion of post-nuclear visions of peace underwritten by darker radioactive mutations. Never losing his sense of wonder at the complexity of life in all its forms, Tezuka creates a science fiction world, where science offers great hope but carries potential danger to humanity and our planet itself.

This presentation will focus on the *Black Jack* series to examine Tezuka's engagement with science, in which like the mythical phoenix of his master series, he explores destruction and the potential for reinvention from the ashes.

Carol Hayes is Associate Professor of Japanese Language and Studies in the College of Asia and the Pacific and Distinguished Educator at the Australian National University. Her recent interests include Japanese cultural production with a focus on modern poetry and Japanese teaching methodologies and practice. Her recent publications include *Japan in Australia* (Routledge, 2020) co-edited with David Chapman, 'A Two-Dimensional Introduction to Sashiko' (*Bridges* 2020) co-authored with mathematician Katherine Seaton, 'Baba Akiko: Imatbyu' (*Tanka Kekyū* 2018, in Japanese); 'Sashiko Needlework Reborn: From Functional Technology to Decorative Art' (*Japanese Studies*, 2019) and 'The Spiritual in the Mundane: The Poetry of the Shikoku O-Henro Pilgrimage', *Sacred Sites and Sacred Stories: Transmission of Oral Tradition, Myth, and Religiosity* (in print for 2020, Palgrave).

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Dr Lindy Orthia, Science Communication, CPAS, ANU

'More a sort of clown, actually': Intersections of Science, Ritualised Performance and Clownish Comedy in *Doctor Who*

Clown characters, comedy and performance have featured in the science fiction television series *Doctor Who* since its inception in 1963. Violent entertainment, stage performances gone wrong, and strategic uses of comedy to defuse tension have all appeared at the centre of *Doctor Who* stories, as have literal circuses and sideshows. Some such appearances have drawn connections with science; for example, several stories show the ritualised performance of magic words changing material reality, and in typical *Doctor Who* manner all are explained in rationalist scientific terms. But by far the most prominent point of intersection between comedy, clownishness and science is within the show's main character, alien scientist the Doctor. This character has been portrayed by many actors in the programme's long history, and while some incarnations are relatively serious in persona, others are both comedic and scientific. Patrick Troughton's Doctor (1966-69) is even derided as 'the clown' by another incarnation because of his baggy clothes and comic persona, and Sylvester McCoy, who played the Doctor from 1987-89, was previously a comic stunt performer who stuffed ferrets down his trousers. In this presentation I will explore these and other ways in which clownish comedy, the magic of performance and science are core to the unique *Doctor Who* aesthetic.

Lindy Orthia is a Senior Lecturer in Science Communication at the Australian National Centre for the Public Awareness of Science. Her academic interests include science in popular fiction, the uses of history in science communication, and intersections of science communication with ideologies such as scientism, Eurocentrism, sexism and heteronormativity. She has published many papers on science and *Doctor Who*, and edited the books *Doctor Who and Race* (Intellect, 2013) and *Doctor Who and Science: Essays on Ideas, Identities and Ideologies in the Series* (McFarland, forthcoming co-edited with Marcus K. Harmes).

Part 2 – Popular Performance and Technology

Associate Professor Martyn Jolly & Dr Elisa deCourcy, ANU School of Art and Design

Mechanical Clowns, Limber Acrobatics and Pirouetting Dancers within the Apparatus of the Magic Lantern

Magic lantern culture and other mechanically and technologically based entertainments such as the circus evolved together during the seventeenth and eighteenth centuries as showmen and performers tramped across Europe. In the nineteenth century, while the itinerant tradition continued, the magic lantern became a part of urban theatrical culture as manufacturing firms built and marketed ever more complex apparatuses for projection, and entrepreneurs developed ever more elaborate phantasmagoria exhibitions. Circuses, theatres and magic lantern shows created new types of organised entertainment spaces within which audiences experienced surprise, wonder and laughter generated by new mechanical and optical apparatuses and new performative conventions. It is not surprising therefore that they shared iconography. The exaggerated gestures, dexterity and comic repertories of the circus and theatre performers made them the ideal subject matter for the animated transformations of mechanical glass slides. This talk presents a selection of these slides drawn from private and public collections. The portfolio of images and sequences in the presentation will be contextualised by a discussion of the evolution of lantern, circus and theatre traditions in nineteenth-century colonial Australia, demonstrating connections and divergences between the different modes of entertainment, and their influence on contemporary media technologies.

Martyn Jolly is an artist and writer and Honorary Associate Professor at the Australian National University School of Art and Design. In 2006, the British Library published his book *Faces of the Living Dead: The Belief in Spirit Photography*. His work is in major Australian photography collections. In 2014, he received an Australian Research Council Discovery grant to co-research the impact of new technology on the curating of Australian art photography. In 2015, he received an Australian Research Council Discovery Grant to lead the international project ‘Heritage in the Limelight: The Magic Lantern in Australia and the World’.

Elisa deCourcy is an art historian, specialising in early photography and associated visual technologies from the nineteenth and early twentieth centuries. She co-edited *The Magic Lantern at Work: Witnessing, Persuading, Experiencing and Connecting* (Routledge, 2020). Her co-authored monograph, *Empire, Early Photography and Spectacle: The Global Career of Showman Daguerreotypist J. W. Newland* will be published by Routledge in 2020. From 2020-2023 she is an Australian Research Council DECRA Fellow, working on a project entitled ‘Capturing Foundational Australian Photography in a Globalising World’.

Dr Ruth Richards, Media and Communication Studies, RMIT University (Melbourne)

The Circus and Technologies of Animation

Witnessing acts of transformation and magical performances in the circus ring, audiences are invited to suspend their disbelief as such acts play upon the tensions between truth and deception, as these circus entertainments produce spectacles of wonder. Technologies of cinema and animation have also long produced such encounters between the real and the imagined, asking audiences to suspend their disbelief while acknowledging the constructed nature of the medium. Although early cinema connection to the circus has been documented, less has been written about the connections between the circus and technologies of animation. Representations of circus have been present in animation since the medium's earliest days. In modern times, animatic technologies (those which produce the illusion of movement and of 'life') have moved beyond the screen, converging once again with contemporary circus. This presentation examines the connections between early animation technologies and circus, including animated representations of circus. The chapter also draws attention to the new connections between animation and circus, invoking animation as a means to enact wonder – a 'sleight of hand' that at once foregrounds its constructed nature while asking the audience to suspend their disbelief; an encounter between the real and the imagined.

Ruth Richards recently completed her PhD in Media and Communication at RMIT University, Melbourne. Her thesis was situated at the intersection of Animation Studies and feminist theory, exploring the nature of the animated body through feminist materialist frameworks. Her research interests include women in animation, histories of early animation and cinema, and feminist film and television studies. She has previously published on the clown in animation at the intersection of horror and humour.

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MA Thomas Conner, Communication and Science Studies, University of California-San Diego (USA)

Pepper's Ghost and the Augmented Reality of Modernity

The emergence of augmented-reality (AR) displays has inspired scholarship examining the social effects and communicative impacts of these visual technologies. But the broader concept of reality augmentation – of overlaying information onto everyday experience – has been likened to the imposition of social discourses and ideologies. This presentation examines the nineteenth-century stage illusion Pepper's Ghost as an ealy AR media system in service to the particular ideological mission of the Royal Polytechnic Institution in London. Despite its spectral imagery and historical parallels to spiritualism, Pepper's Ghost was instrumental in servicing the Polytechnic's goals of promoting rational modernity and scientific progress, which it accomplished by mediating the epistemic divide between superstition and science and

blending Polytechnic ideology with the phenomenological experience of the screened image. This presentation will make visible the ideological function of two apparatuses: the Pepper's Ghost illusion as a media system, and the social institution of the Polytechnic itself. The presentation will situate the current revival of Pepper's Ghost stagings as a twenty-first century phenomenon amid new restagings of Pepper's Ghost as performing 'holograms'.

Thomas Conner is a PhD candidate in Communication and Science Studies, studying the cultural histories and media effects of holographic imagery. He holds a Master's in Communication from the University of Illinois-Chicago and a BA in Mass Communication from the University of Oklahoma. He was a professional newspaper journalist for more than 20 years, working as a features editor and music critic, most recently as the music columnist at the Chicago Sun-Times. See more at www.thomasconner.info.

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Dr Yuji Sone, Department of Media, Music, Communication and Cultural Studies, Macquarie University

Hiroshi Ishiguro's Android Science: The Fabulation of 'Upstream Engagement' and Entertainment

This presentation examines Japanese roboticist Hiroshi Ishiguro's 'science communication', that is, public relations communications of science for non-experts. It discusses this communication as 'upstream engagement', a phrase that refers to the idea of dialogue between scientists and the public to introduce future technologies before actual research and development are established. Ishiguro is internationally acclaimed for his creation of anthropomorphic robotic machines, humanoids and androids. Ishiguro communicates his vision with the public through popular media and the arts, deploying his anthropomorphic robots in popular entertainment contexts such as film, television, theatre and in science museum exhibitions. As this presentation will show, Ishiguro's android science straddles the borders between science, popular arts and public relations, suggesting that anthropomorphic machines can have performative agency, stimulating questions of probability, possibility, and 'what if': the very heart of 'upstream engagement', a modality of plausibility rather than actuality that mixes the fictive with the scientific imaginary. This presentation argues that the combination of Ishiguro's enigmatic public persona and his 'upstream' science communications through popular media outlets combine to create Ishiguro as a science celebrity: a role not separate from his persona as a scientist, but dependent upon it. This indeterminate role is itself a kind of entertainment, an effect that is especially pronounced for a Western audience. Ishiguro's android science then becomes a unique form of storytelling or fabulation, as Deleuze puts it, particularly in its 'upstream engagement' forms.

Yuji Sone is a Senior Lecturer, teaching Theatre and Performance Studies courses in the Department of Media, Music, Communication and Cultural Studies at Macquarie University in Australia. His research has focused on the cross-disciplinary conditions of technologised performance. He is the author of *Japanese Robot Culture: Performance, Imagination, and Modernity* (Palgrace Macmillan, 2017).

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Dr Rebecca Hendershott, Biological Anthropology, ANU

A Bit of Fun? Or Harmful Representation? Human Evolution and Savagery in Popular Culture

Our discourse of prehistoric hominids is intimately tied to the idea of technological advancement, while our visual representations of them are a reflection of the belief that we progressively become more civilised through the course of evolution. In this way, then, findings from the anthropological and archaeological sciences are performed and presented to the public through the use of technology. This is problematic in several regards, including lingering issues of colonial mindsets, speciesist hierarchies, a misunderstanding of evolution, and culturally-specific understandings about 'universal' social and gender roles being applied to prehistoric hominids. These representations and problematic memes perpetuate hierarchies, by making the 'caveman' shorthand for savagery, where we can laugh at their incivility and sub-human capabilities but tremble at their superhuman strength. This even emerges in comics – e.g. the Hulk transformers from a brilliant scientist to a brutish, violent strongman – where there seems to be a direct tradeoff and tension between intelligence/self-control and strength/violence. Technology is also intimately embedded in this discourse; e.g. consider the bone-to-satellite transition in *2001: A Space Odyssey*. What are the implications of this sort of representation? What does this do to our understanding of the science of prehistoric hominids, technology and the concept of savagery? What does this mean for how we engage with popular culture and one another? This presentation considers how racism and human exceptionalism are perpetuated through this playful-yet-inaccurate understanding of human evolution and imaginaries.

Rebecca Hendershott is a biological and social anthropologist and Animal Studies scholar. She started as a primate that studied nonhuman primates, but has now expanded her interests to include human primates and how they talk about, engage with, and represent our extended family tree. Her current research projects include how nonhuman-animal researchers view and 'be-with' their research subjects, and the creation of an argument and methodology for a truly interdisciplinary project on gender in nonhuman primates.

Dr Brad Tucker, Research School of Astronomy and Astrophysics/Mount Stromlo Observatory/ Australian National Centre for the Public Awareness of Science, ANU

Aliens – Science Fiction and the Search for Them

Aliens are a popular motif in science fiction. However, they are one grounded purely in the fiction domain – never have we encountered, discovered or found clear evidence for, any sort of life beyond Earth. Yet, now more than ever, aliens are rife in popular fiction while billions of dollars are being invested in programmes to search for signs of life, including intelligent life. This presentation explores the history of aliens in fiction, and how these portrayals have impacted the search and increase of technology in the search for aliens. The truth may be out there.

Brad Tucker is an astrophysicist/cosmologist at the Research School of Astronomy and Astrophysics, Mt. Stromlo Observatory and the National Centre for the Public Awareness of Science at the Australian National University. He is leading programmes using NASA's Kepler Space Telescope and TESS to understand why and how stars blow up. He is also building a network of ultraviolet telescopes in the upper atmosphere, a search to find Planet 9, as well as issues surrounding the mining of asteroids. Brad frequently gives talks to school groups and the public about Astronomy and has regular segments on various radio and TV stations. He has also developed a series of Astronomy coins with the Royal Australian Mint, consulted on science fiction movies, and has been featured in TV specials. He is currently in the process of writing his first popular book.