



Dr Gail N. Iles

BSc (Hons) MInstP CPhys

Neutron Scattering, ANSTO Sydney

discussing

**'ZERO-GRAVITY! Buckle up for a ride
on the 'vomit comet'...'**

"International Women's Day: Pledge for Parity"

Date: **Wednesday, 6th April 2016**

Time: **18:00 for 18:30 hours sharp**

Venue: **Ainsworth Building J17, Design Studio level 5
University of New South Wales**

Light refreshments will be available prior to the commencement of the meeting Attendance will attract 1.5 CPD hour

Synopsis: Have you ever wanted to be an astronaut? Have you ever dreamed of floating in space, totally weightless? This is the talk for you! One way of experiencing zero-gravity is during a parabolic flight manoeuvre in everyday aircraft. The A300 'Zero-G' in France regularly makes parabolic flights for scientific researchers, enabling them to measure the effects of gravity on physical systems. Experiments are bolted to the seat tracks, whilst the human operators are free to float around inside the cabin. As well as scientific flights, microgravity is also the perfect place to train astronauts before they fly to the space station, and here I will show some footage of myself training the latest generation of European astronauts onboard the A300.

Profile: Dr Gail Iles is an instrument scientist responsible for EMU, the cold neutron backscattering spectrometer, in the Bragg Institute – part of ANSTO and leads Australia in the use of neutron scattering and X-ray techniques to solve complex research and industrial problems in many important fields. Her expertise in neutron scattering has been demonstrated through characterisation measurements at neutron sources around the world, and in neutron instrumentation.

Gail was instrument scientist of FALCON, the neutron Laue diffractometer at HZB in Berlin, Germany, responsible for the design, construction and commissioning of this new instrument. Previously, Gail also spent a short time as instrument scientist on the high-flux powder diffractometer, D20 at the ILL in Grenoble, France.

Gail's research interests are in the field of rare earth magnetism. The very high resolution of EMU will be ideal for investigating hyperfine energy fields which typically occur at just a few μeV - (*symbol μ is a unit prefix in the metric system denoting a factor of 10^{-6} (one millionth). Confirmed in 1960, the prefix comes from the Greek $\mu\kappa\rho\acute{\omicron}\varsigma$ (mikrós), meaning "small" and eV is the symbol for electric volt.* A number of rare earth atoms have been shown to undergo hyperfine splitting which can be observed as the interaction between the spins of the incoming neutron and the sample nuclei. Studies of nuclear magnetism will help us better understand the mechanisms of high-temperature superconductivity, for example.

Gail is a determined and well-motivated individual. An experienced public speaker with wide-ranging interests and abilities. As you will be convinced Gail believes in positive thinking, life-long learning and that anything is possible.

Qualifications and Achievements

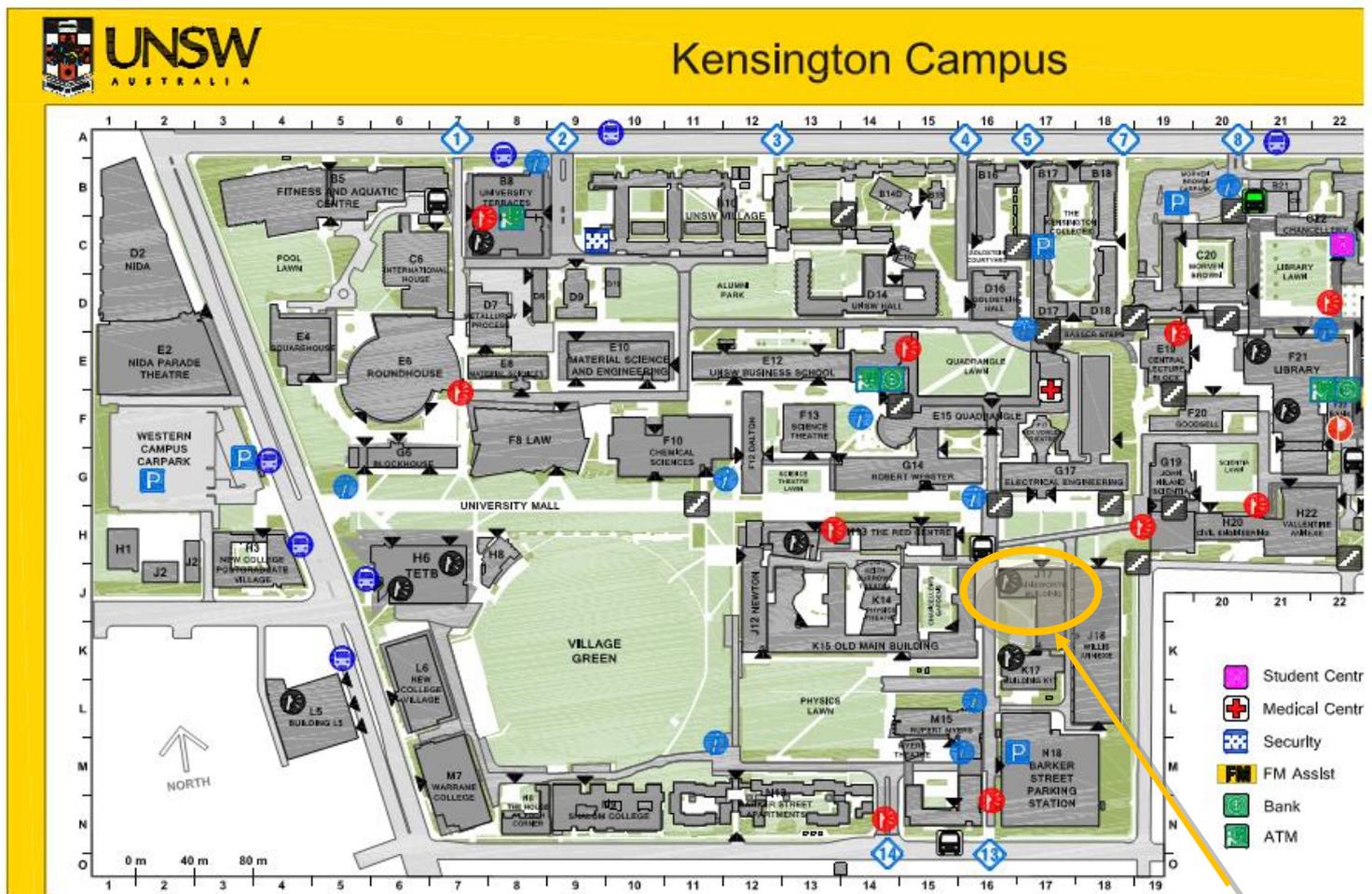
- WISE Champion award presented by HRH Princess Anne for a range of outreach activities with Unlimited Theatre; for inspiring children, especially girls, to study science, technology and mathematical subjects at school (2011)

- Novespace Bronze Medal awarded for flying 500 parabolas onboard the Zero-G aircraft, Bordeaux, France, accumulating over 2.5 hours in microgravity (2011)
- European Space Agency fellowship awarded to characterise intermetallics at ILL and ESRF, Grenoble, France, within the framework of the FP6 project, IMPRESS (2007-2009)
- PhD in experimental condensed matter physics awarded by University of Leicester, UK (2007)
- BSc (Hons) in Natural Sciences with Physics awarded by Open University, UK (2003)

Gail has authored many publications both individually and in collaboration with many other scientists.

RSVP: Whilst attendance is free - registration for the evening **is required**. Please register by clicking on/copying and pasting into your URL this link: <http://raesapril16.eventbrite.com.au> Your registration will be confirmed by email with an attached ticket. **Please print the ticket and present the ticket at the door. Please note:** Non-members should enter the code **NM** if requested to enter a RAeS membership number. Anyone who does not have access to the internet can send a letter to Mr Jeff Lock, 4 Hillcrest Place, North Manly NSW 2100 with your name (plus names of accompanying persons), address, and phone number.

Parking: Limited parking is available in surrounding streets with paid parking within the Uni of NSW car park tower, entry from Barker Street. Please observe parking restrictions and allow time to drive to the University of NSW, park and walk to the venue. (Refer to map and also www.facilities.unsw.edu.au/sites/all/files/KENC%20Campus%20Map_5.pdf - ref J17)



DINNER: After the presentation Gail will join us for dinner as a guest of the committee. Members and visitors are invited to attend the dinner to be held at Giovanna Italian Restaurant, 285 Anzac Parade, Kingsford. (approx \$40 pp including soft drink & wine.)

Public Transport: Regular buses (391, 392, 393, 394, 396, 397, 399, M10) leave from outside Museum train station in Liverpool Street, and the 395 and M50 in Elizabeth St, opposite Central Station. Please allow time to travel by public transport, including waiting time, and time to walk to the venue from the UNSW bus stops. There are a number of other buses such as the 400 and 370 that travel to and from

suburbs on the outskirts of the CBD and stop at the UNSW. Please refer for further details: www.sydneybuses.info/routes/timetables-route-maps

Webinar 'Sydney's Second Airport: Realty & Myth'

The Australian Division of the Royal Aeronautical Society is hosting a webinar entitled:

SYDNEY'S SECOND AIRPORT: REALITY & MYTH

When: Friday 22 April, 2016 from 12:00 to 13:00 hours (AEST). The event is live for registrations at Eventbrite: raeswebinar.eventbrite.com.au

Facilitator: David Forsyth

Panellists: Dr Warren Mundy (School of Aviation, UNSW); Mr Greg Hood (Airservices Australia); Mr Bob Germaine (RDA); plus one TBA.

Questions will be taken from registered participants as time allows.

RAeS Members FREE Non-members \$25

Webinar joining instructions will be forwarded to individuals registered, after the closing time for registration. [Add to Calendar](#)

2016 RAeS UK Council Elections are now open: The Council Elections are now open and will remain open until 9am on 12 May 2016 (UK), please click [here](#) to cast your vote. All voting member should have received an email which contains your unique voting number and instructions on how to cast your vote. If you have not received an email, do not have a valid email address, or do not have access to the internet please contact: Mr Peter Brooks, P.O. Box 179, Cronulla NSW 2230, email: petercbr@bigpond.net.au, telephone 02 9523 4332. See more at: www.aerosociety.com/About-Us/Governance/councilelections#sthash.RgGx10TS.dpuf

Thank you for taking the time to vote in the 2016 UK Council Elections.

Longest serving member Mr John Mills CEng FRAeS celebrates his 100th Birthday: On the 8th March, 2015, John Burnes Mills celebrated his 100th birthday. John will be remembered by ex-Qantas members of the Society as Chief Inspector of Qantas Maintenance and Engineering from 1959 to his retirement, a role he filled with distinction. As well as his century, John can look back on the longest surviving membership of the Royal Aeronautical Society in Australia, a total of 79 years, having joined on 16th March, 1937.

Those two personal achievements are alone worthy of special recognition, but release of previously unpublicised information has revealed that John Mills had a remarkable career before he joined Qantas, one in which he made a major contribution to Australia's war effort, and then in an executive role in another Australian airline. He graduated with Honours in Science and Engineering in 1937 to be the first graduate engineer employed by the then small de Havilland Australia. He was shipped to de Havilland UK to spend two years gaining experience in design and manufacture. On his return he was appointed Works Manager at age 24 supervising Tiger Moth manufacture, and then in 1941 placed in charge of technical development of the newly established propeller manufacture.

His major contribution began in 1942 when he again travelled to the UK and returned with a full set of Mosquito drawings in a brief case strapped to his wrist. John at age 25 was then in charge of the Australian Mosquito production, a monumental task which continued into 1944, involving major technical difficulties, delays and two tragic aircraft losses. In late 1944 he was appointed Chief Engineer of de Havilland Australia.

In 1946, John was appointed Chief Engineer of British Commonwealth Pacific Airways and remained in that post until BCPA was absorbed into Qantas in 1954 where he became Engineering Production Manager in control of aircraft maintenance and engine overhaul. Starting in 1957 he spent two years as Qantas Resident Engineer at Boeing co-ordinating production and delivery of the first 707s.

John now lives in a retirement home in Northern New South Wales near to the farm of his son, Steven.

Written by Brian Van de Water.

John's birthday was recognised by the President of The Royal Aeronautical Society, Martin Broadhurst OBE MA CDir FIOD FRAeS who wrote to John Mills on his 100th birthday congratulating him on his milestone and particularly as a member of the Society. (This letter will be published in the next Australian Division Newsletter.)

**CAPTAIN RICHARD PETER CHAMPION DE CRESPIGNY FRAeS
MEMBER (AM) IN THE GENERAL DIVISION OF THE ORDER OF AUSTRALIA**

The Sydney Branch acknowledges Captain Richard de Crespigny AM FRAeS, 2016 Australia Day Award - for significant service to the aviation industry both nationally and internationally, particularly to flight safety, and to the community. His service includes Pilot, A380 Airbus, QANTAS Airways, since 1986.

As Captain and Pilot in Command he played a major role in saving the lives of 469 passengers and crew on board Qantas Flight 32 out of Singapore on 4th November 2010 after one of its Rolls-Royce Trent 900 engines exploded causing a major fire and extreme danger to the A380 aircraft itself and all on board. Captain Richard's full citation can be found at:

[www.gq.gov.au/sites/default/files/files/honours/ad/ad2016/dvvsf4sc1d05nwgt/Media%20Notes%20-20AM%20\(A-L\)\(1\).pdf](http://www.gq.gov.au/sites/default/files/files/honours/ad/ad2016/dvvsf4sc1d05nwgt/Media%20Notes%20-20AM%20(A-L)(1).pdf) (Page 17 within the PDF)

Taking delivery of your new BOEING 777-300ER: SWISS flagship in the World of SWISS - delivery flight - click to enjoy: www.youtube.com/watch?v=n4N4bbIK2Is

Nominations for the 2016 Society Honours, Medals & Awards now open: "The most prestigious and long-standing awards in global aerospace honouring achievement, innovation and excellence".

The Society awards Honours, Medals and Specialist Awards to both individuals and teams. The Specialist Awards are intended to cover the full range of aerospace disciplines. See details at:

aerosociety.com/About-Us/medalsawards

To nominate simply complete the [Nomination Form](#) and return it to the Society. Nominations must be received by **31st March 2016** to be included in the 2016 round of Royal Aeronautical Society Honours, Medals and Awards nominations. Those received after this date will be carried forwards for inclusion in the 2017 round.



Who runs the Wings Awards? The Wings Awards are run jointly by the Australian Division of the Royal Aeronautical Society and *Australian Flying* magazine.

When do entries open? When do entries close?

Entries open 28 March 2016 and close 1 July 2016.

What do the Wings Awards recognise? The Wings Awards take a panoramic view of the general aviation (GA) industry by recognising the achievements of aviators, aero clubs, instructors and training organisations that form the backbone of the GA industry. Excellence will be recognised across four categories:

- Col Pay Lifetime of Service to General Aviation
- Aero Club of the Year
- Flying Training Organisation of the Year
- Flying Instructor of the Year

What is the Col Pay Award? The most prestigious Wings Award is the Col Pay Lifetime of Service to General Aviation Award, which recognises significant contributions to GA over long careers. The Col Pay Award is named after GA legend Col Pay, a well-known aviation pioneer who specialised in agricultural aviation and warbirds from his home base in Scone, NSW. Nominations for the Col Pay Award are perpetual; once someone is nominated, but does not win, the submission will be considered again in the following years. This doesn't happen with any other Wings Awards categories.

Who is eligible to enter the Wings Awards 2016 and where do I need to submit my nomination for a Wings Award? Each award has a different submission, criteria and process to follow. It is recommended entrants first read these prior to nominating by visiting <http://www.australianflying.com.au/wings-awards> to submit your nomination.

How much does it cost to enter the Wings Awards 2016?

There are no costs in nominating an entrant across any of the categories.

How long does the online nomination process take?

If you have pre-prepared all of the requirements outlined in the submission, process and criteria, it shouldn't be a long and difficult process.

Can I nominate into a category more than once?

Yes. Individuals putting forward nominations can make submissions in more than one category.

Can I nominate the same person/club/instructor/school for more than one award?

Each category has a different submission, procedure and criteria and requires a separate entry, but you are welcome to nominate as many as you like.

How will the winners be announced?

The winners will be announced in the November-December 2016 issue of *Australian Flying* and on the website www.australianflying.com.au.

Boeing Celebrates Centennial with 'The Age of Aerospace' Documentary Series: Australian TV

Premiere Sunday 27 March at 9.30pm AEDT on Discovery Science.

SYDNEY, March 24, 2016 – Boeing, the world's largest aerospace company, will mark its centennial celebrations in Australia with the premiere of a five-part documentary series, 'The Age of Aerospace', on Discovery Science (Foxtel Channel 638) premiering Sunday 27 March at 9.30pm AEDT.

The Boeing-sponsored series explores major advancements in civilian, military and space technology over the past 100 years, from pioneering aircraft designs like the B-17 Flying Fortress and 747 jetliner to the Space Launch System that will take mankind to Mars and beyond.

"The history of aerospace is the history of Boeing, which is on vivid display during this inspiring documentary series," said Maureen Dougherty, president, Boeing Australia and South Pacific. "From the earliest days of flight to today's 787 Dreamliner – flying with moveable trailing edges made right here in Australia – viewers are taken on a journey that spans ten decades and demonstrates Boeing's enduring commitment from the very beginning to always build something better."

Produced by an award-winning production company, The Documentary Group, the screening schedule for the five episodes on Discovery Science is as follows:

- **Episode 1: What Can't We Do?** The premiere episode reveals how Bill Boeing, Donald Douglas, James McDonnell and their contemporaries took the invention of the airplane and forged an industry, delivering advancements in communication, transportation, and warfare.
(Premieres Sunday 27 March at 9:30pm AEDT. Encores Monday 28 March at 4:30pm AEDT and Tuesday 29 March at 10:30am AEDT)
- **Episode 2: Miracle Planes** details the role American industry and planes, including the B-29 Superfortress, North American P-51 Mustang and the Boeing B-17 Flying Fortress, played in the Allied victory over Germany and Japan.
(Premieres Sunday 3 April at 9:30pm AEST. Encores Monday 4 April at 4:30pm AEST and Tuesday 5 April at 10:30am AEST)
- **Episode 3: Shrinking the Earth** explores three planes that launched the jet age: the B-47 bomber, the Boeing 707 and the 747 Jumbo Jet, the airliner that reshaped global air travel.
(Premieres Sunday 10 April at 9:30pm AEST. Encores Monday 11 April at 4:30pm AEST and Tuesday 12 April at 10:30am AEST)
- **Episode 4: In the Vastness of Space** tells the story of Project Apollo, which accomplished landing the first humans on the Moon, and humankind's first journey to the Moon on Apollo 8.
(Premieres Sunday 17 April at 9:30pm AEST. Encores Monday 18 April at 4:30pm AEST and Tuesday 19 April at 10:30am AEST)
- **Episode 5: Dreamliner** reveals the technology, resources, and risk required to build commercial aircraft in the modern world through the story of the most recent revolution in jet design, the 787 Dreamliner.
(Premieres Sunday 24 April at 9:30pm AEST. Encores Monday 25 April at 4:30pm AEST and Tuesday 26 April at 10:30am AEST)

For more information on Boeing's centennial, visit: www.boeing100.com

2016 Diary: **March 1:** The RAeS UK Council Elections are open. Refer to page three for further details and: www.aerosociety.com/About-Us/Governance/councilelections#sthash.RgGx10TS.dpuf

March 28: Nominations for 'The 2016 Wings Awards' open – refer for further information: www.australianflying.com.au/wings-awards

March 31: Nominations for the '2016 Society Honours, Medals & Awards' close – refer details at: aerosociety.com/About-Us/medalsawards

Apr 22: Webinar **SYDNEY'S SECOND AIRPORT: REALITY & MYTH** – from 12:00 to 13:00 hours (AEST). Register at: raeswebinar.eventbrite.com.au

Apr 30-May 1: Wings over Illawarra – refer details at: www.wingsoverillawarra.com.au



May 2-5: AUVSI's XPONENTIAL 2016 Unmanned Systems Show, New Orleans, Louisiana, USA — The Association for Unmanned Vehicle Systems International will host XPONENTIAL 2016 - your opportunity to hear from industry

leading experts across every domain - air, ground and maritime. XPONENTIAL 2016 convenes the largest global community of commercial and defense leaders in robotics, drones and unmanned systems. Refer details at: <http://www.xponential.org/auvsi2016/public/enter.aspx>

May 12: The RAeS UK Council Elections close. Refer March 1 Diary item above.

May 24: Proposed **Members only** visit to the Qantas Jet Base – further details will be advised when plans are finalised.

July 1: Nominations for 'The 2016 Wings Awards' close.

Sept 15-18: Australasian Society of Aerospace Medicine 2016 annual conference, Townsville Qld - refer details at: event.icebergevents.com.au/asam-2016/

Sept 25-30: ICAS 2016 in Daejeon, Korea – refer for further details: www.icas2016.com The Preliminary Programme is at:

www.icas.org/media/ICAS%20Congress%202016%20Preliminary%20Programme.pdf

Oct 25-27: APISAT 2016 in Toyama, Japan. Call for papers close 20/5/2016 – refer details at: www.jsass.or.jp/apisat2016

Feb 28- March 5, 2017: AVALON2017 – Australian International Airshow and Aerospace & Defence Exposition – The Essential Aerospace Forum – is open for business. Refer details at: airshow.com.au/airshow2017/enews/AS2017-Newsletter-ED1.html



Sept 25-29, 2017: The 68th International Astronautical Congress is being held in Adelaide. Thousands of scientists, including some 200 astronauts, will participate in the international space congress. The global economy and security of many nations depends on assured and secure access to satellites that provide communications, timing and navigation services and remote sensing data. Space probes are also vital to our understanding of the solar system and the far universe. The IAC2017 program addresses all of these topics and emphasises the important contribution that space makes to STEM education as well. Refer details at: iac2017.org/